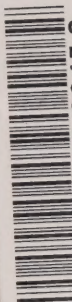


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# ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 392

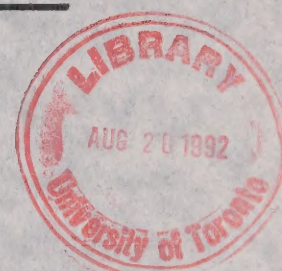
DATE: Wednesday, August 5, 1992

BEFORE:

A. KOVEN Chairman

E. MARTEL Member

FOR HEARING UPDATES CALL (COLLECT CALLS ACCEPTED) (416) 963-1249



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-H26



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VOLUME: 392

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BEFORE:

A. KOVEN Chairman

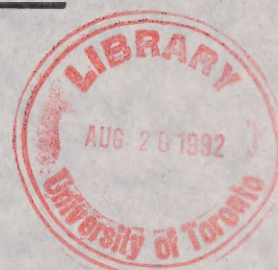
E. MARTEL Member

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2300 Yonge St., Suite 709, Toronto, Canada M4P 1E4









HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL  
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR  
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental  
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental  
Assessment for Timber Management on Crown  
Lands in Ontario;

- and -

IN THE MATTER of a Notice by The Honourable  
Jim Bradley, Minister of the Environment,  
requiring the Environmental Assessment  
Board to hold a hearing with respect to a  
Class Environmental Assessment (No.  
NR-AA-30) of an undertaking by the Ministry  
of Natural Resources for the activity of  
Timber Management on Crown Lands in  
Ontario.

-----  
Hearing held at the Civic Square, Council  
Chambers, Sudbury, Ontario on Wednesday,  
August 5, 1992, commencing at 8:35 a.m.

-----  
VOLUME 392

BEFORE:

MRS. ANNE KOVEN  
MR. ELIE MARTEL

Chairman  
Member







A P P E A R A N C E S

MR. V. FREIDIN, Q.C.	)	MINISTRY OF NATURAL
MS. C. BLASTORAH	)	RESOURCES
MS. K. MURPHY	)	
MR. B. CAMPBELL	)	
MS. J. SEABORN	)	MINISTRY OF ENVIRONMENT
MS. N. GILLESPIE	)	
MR. R. TUER, Q.C.	)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN	)	ASSOCIATION and ONTARIO
MS. E. CRONK	)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY	)	ASSOCIATION
MR. D. HUNT	)	
MR. R. BERAM		ENVIRONMENTAL ASSESSMENT BOARD
MR. J.E. HANNA	)	ONTARIO FEDERATION
DR. T. QUINNEY	)	OF ANGLERS & HUNTERS
MR. D. O'LEARY		
MR. D. HUNTER	)	NISHNAWBE-ASKI NATION
MR. M. BAEDER	)	and WINDIGO TRIBAL COUNCIL
MS. M. SWENARCHUK	)	FORESTS FOR TOMORROW
MR. R. LINDGREN	)	
MR. D. COLBORNE	)	GRAND COUNCIL TREATY #3
MR. G. KAKEWAY	)	
MR. J. IRWIN		ONTARIO METIS & ABORIGINAL ASSOCIATION
MS. M. HALL		KIMBERLY-CLARK OF CANADA LIMITED and SPRUCE FALLS POWER & PAPER COMPANY







APPEARANCES (Cont'd):

MR. R. COTTON		BOISE CASCADE OF CANADA LTD.
MR. Y. GERVAIS	)	ONTARIO TRAPPERS
MR. R. BARNES	)	ASSOCIATION
MR. P. ZYLBERBERG	)	NORTHWATCH COALITION
MS. B. LLOYD	)	
MR. J.W. ERICKSON, Q.C.)		RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK	)	MUNICIPAL COMMITTEE
MR. D. SCOTT	)	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR	)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL		GREAT LAKES FOREST
MR. S.M. MAKUCH		CANADIAN PACIFIC FOREST PRODUCTS LTD.
MR. D. CURTIS	)	ONTARIO PROFESSIONAL
MR. J. EBBS	)	FORESTERS ASSOCIATION
MR. D. KING		VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. H. GRAHAM		CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN		DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC		MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES		ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI		BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY





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APPEARANCES (Cont'd):

MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON
MR. C. BRUNETTA	NORTHWESTERN ONTARIO TOURISM ASSOCIATION







I N D E X   O F   P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>LAURIE A. GRVELINES,</u> <u>FRANK KENNEDY,</u> <u>RICH GREENWOOD,</u> <u>KEN ARMSON,</u> <u>DAVE GORDON,</u> <u>KEN ABRAHAM,</u> <u>AL BISSCHOP; Resumed.</u>	67421
Direct Examination by Mr. Freidin (Cont'd)	67422
Cross-Examination by Mr. Cassidy	67604





I N D E X   O F   E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
2302	A series of overheads entitled Ontario Growth and Yield Initiative.	67421
2303	A series of overheads entitled The MNR's Response to Forests for Tomorrow's Silvicultural Guidelines.	67452
2304	Series of overheads entitled Site Productivity.	67498
2305	Series of overheads entitled Long-Term Forest Productivity Study, Cull and Full Tree Harvest.	67498
2306	Hard copy of overheads consisting of 13 pages re Mr. Grvelines.	67576





1 ---Upon commencing at 8:35 a.m.

2 MADAM CHAIR: Please be seated.

3 Good morning, Mr. Freidin.

4 Are we ready to get started?

5 MR. FREIDIN: We are. Mr. Greenwood is  
6 going to present his evidence in relation to the  
7 subject matter of growth and yield and perhaps we  
8 should start by marking as the next exhibit a series of  
9 overheads entitled Ontario Growth and Yield Initiative  
10 and there are 20 pages.

11 MADAM CHAIR: These overheads will become  
12 Exhibit 2302.

13 ---EXHIBIT NO. 2302: A series of overheads entitled  
14 Ontario Growth and Yield  
15 Initiative.

16 MADAM CHAIR: Mr. Hogg, could we have an  
17 extra copy, please.

18 MR. FREIDIN: Just for your reference,  
19 Madam Chair, the witness statement in relation to this  
20 topic is Panel 3, witness statement pages 24 to 26.

21 LAURIE A. GRVELINES,  
22 FRANK KENNEDY,  
23 RICH GREENWOOD,  
24 KEN ARMSON,  
25 DAVE GORDON,  
KEN ABRAHAM,  
AL BISSCHOP; Resumed.

MADAM CHAIR: Thank you.

1        DIRECT EXAMINATION BY MR. FRIEDIN (Cont'd):

2                                Q. Any time you are ready, Mr.  
3 Greenwood.

4                                MR. GREENWOOD: A. I would like to thank  
5 the Board for allowing me to consolidate my topics into  
6 one panel, even though it means a brief interlude from  
7 Panel 5 and take you back to the objectives of Panel 3.

8                                This particular topic in Panel 3 was  
9 under the title of Continuing Developments and what I  
10 have prepared this morning is a very brief overview of  
11 this rather major new initiative and then I would like  
12 to specifically deal with one of the Board issues in  
13 your mail evidence letter where you asked for  
14 clarification of the proposed stratification system  
15 that would be used.

16                               Growth and yield work in Ontario goes  
17 back close to 70 years to work that was initially  
18 started in the 1920s. In fact, the one that I am  
19 thinking of took place in the Big Pic area on the map  
20 that was up a minute ago, Exhibit 2301.

21                               Interestingly enough the person doing  
22 this work had an objective to examine growth of spruce  
23 and jack pine in a way that would require no more stem  
24 analysis or detailed work to examine growth and yield  
25 of those two species. It was a rather major objective.



1 Unfortunately, he was not too successful in that  
2 regard.

3 Between the 1930s and the 1950s work was  
4 also initiated primarily by companies in the  
5 installation of permanent sample plots. Many of those  
6 projects were abandoned over the years, but there still  
7 are some of those permanent sample plots in the  
8 province that have been measured right until this day.

9 The Ontario government has also involved  
10 in the installation of some of these sample plots  
11 starting in the 1950s but they focused primarily on red  
12 pine.

13 So what we see is that it wasn't until  
14 the late 1950s that two major studies were undertaken.  
15 These were major in that they were province wide and  
16 these were the development of a provincial normal yield  
17 tables by Walter Plonski and the development of  
18 provincial cull tables through a survey by Dr.  
19 Merowski.

20 Unfortunately these two particular  
21 projects were the last comprehensive in that they were  
22 a province-wide effort and province-wide effort in  
23 growth and yield in Ontario and, in fact, the normal  
24 yield tables have been used as one of the core  
25 information items in growth and yield in management

1 planning until recent times.

2                   There were a number of other initiatives  
3 in later years, particularly the 70s and the 80s and  
4 the Board has hard some of these described. These  
5 initiatives were aimed primarily at site and soils  
6 information so they include the forest ecosystem  
7 classification developments, the forest land  
8 productivity survey in the northeastern region and each  
9 of these programs also contained an element of growth  
10 and yield work.

11                   There were stem analysis projects aimed  
12 at particular treatment effects, but these projects  
13 were largely uncoordinated. They were designed  
14 primarily to answer local needs and as a result had  
15 differing goals, standards and designs which made them  
16 incompatible for aggregation in development of  
17 provincial type information.

18                   As well, in the 1970s and 1980s the  
19 demand grew for better growth and yield information as  
20 foresters moved towards more sophisticated computerized  
21 decision support models and tools, as management  
22 options increased and as they sought a broader  
23 ecological basis for their management and many of these  
24 concerns were reflected at the earlier stages of this  
25 environmental assessment.



1                   So a decision was made in late 1989 to  
2   development a new provincial growth and yield strategy  
3   for Ontario and a committee was struck and this  
4   committee in early 1990 produced a first draft of a  
5   growth and yield strategy which was widely circulated  
6   within the province and it was the comments and the  
7   return of that draft that started this initiative.

8                   What they found by circulating this draft  
9   was that there was a universal desire for action in  
10   this area. In fact, a long-standing need in this area,  
11   but the directions and priorities were not clear and  
12   they were not consistent by the comments that were  
13   returned. There was very little consensus on the  
14   actions that needed to be taken and it forced the group  
15   to rethink strategy development.

16                  In this particular slide I am attempting  
17   to demonstrate that for most people it was obvious what  
18   we needed. They said we need a growth and yield  
19   program, but when we started questioning them with  
20   respect to the details, those that had to ground such a  
21   program as to what they wanted and asked them to  
22   describe it, even though in this case they all said we  
23   need a car when we asked them to describe what they  
24   needed, their uses and their functions were quite  
25   different and it caused major concern for those

1 attempting to develop a province-wide program that was  
2 going to require some consensus and momentum in order  
3 to deliver it because it is a long-term program.

4 The concern was also wider than that  
5 group first thought. The concern was not only coming  
6 from forest practitioners. It was coming from a host  
7 of other users or potential users of this information,  
8 including most specialties related at all to the forest  
9 including wildlife managerrsm, including entomologists,  
10 geneticists and this caused some concern in terms of  
11 attempting to put in place a program that would be  
12 reasonable and practical to deliver, but also satisfies  
13 as many of these users as possible.

14 What they found was that the program was  
15 faced with a number of challenges. The ones that I am  
16 showing on slide No. 4 indicate some of the long  
17 standing and increasing needs of foresters. So these  
18 are primarily aimed at timber management, better timber  
19 prediction capabilities, more specifically they needed  
20 better information on the effects of site on growth.

21 These were foresters that were now using  
22 forest ecosystem classification or similar type  
23 information and yet the growth and yield information  
24 that they had in Plonksi's yield tables was on a  
25 broader site description and they wanted more details



1 with respect to local site. They wanted more details  
2 with respect to treatment effects, both from potential  
3 growth and also the efficiencies of those treatments.

4 The long-standing question was the  
5 mortality rates related to site of particular species  
6 site combinations and in terms of timber prediction  
7 this related to the storability of that timber on the  
8 stump.

9 There were also concerns with respect to  
10 the dynamics of new forest growth both after a  
11 disturbance and also in an understorey as would be  
12 common in the Great Lakes/St. Lawrence Forest. So  
13 there were a host of particular challenges that they  
14 wanted spoken to.

15 What the group found at that time was  
16 that besides these long standing stemwood type measures  
17 there were a number of other needs that it was felt was  
18 necessary to more explicitly consider. These needs  
19 related to a larger set of forest-related values and  
20 concerns.

21 For example, the foresters were being  
22 asked to give growth and yield information related to  
23 non-traditional measures of the forest growth. So in  
24 terms of growth with respect to wildlife browse, for  
25 example, growth with respect to diversity questions or

1 growth in terms of a description of stand structure.

2 They were also recognizing the need to be  
3 able to examine and consider new management practices  
4 as they developed in terms of growth and yield. One  
5 that is a hang-over from the 70s was as a result of the  
6 energy crisis and the potential use of the forest for  
7 biomass, and yet none of our traditional growth and  
8 yield programs had ever measured biomass in that sense.

9 There was also recognition of the  
10 changing public attitudes and public accountability,  
11 questions such as long-term productivity which hadn't  
12 explicitly been considered in growth and yield  
13 predictions.

14 There was also concern for other human  
15 caused disturbances and environmental changes and it  
16 was felt that if possible the growth and yield program  
17 needed to perform some sort of a monitoring role for  
18 things such as pollution. So there was a host of other  
19 concerns that did not traditionally form part of  
20 stemwood measurements in growth and yield programs.

21 Another specific concern facing the  
22 program was that it was felt that a new initiative in  
23 the 1990s had to deal with the time scale program  
24 associated with forests. This one has been rather  
25 succinctly described by Dr. Hamish Kimmons, University

1 of British Columbia, and the problem that he -- the  
2 label I guess that he gives to this problem is called  
3 future shock and the way he describes is that  
4 traditional programs examine mature natural forests and  
5 literally take apart of the growth of those forests  
6 through the life of that stand and then attempt to use  
7 that to predict what will go on in the future. He  
8 describes this as a historical bioassay.

9           The problem, as he indicates it and is  
10 shown in this slide is that it is equivalent to  
11 attempting to drive down a road by looking soley in  
12 your rearview mirror. It works perfectly fine as long  
13 as the road is straight, but if there are any curves in  
14 the road you have problems and his feeling was that if  
15 the conditions in the future are equal to those in the  
16 past those measurements will be accurate. If those  
17 conditions have changed at all then you may need to be  
18 measuring parameters that allow you to examine your  
19 data with respect to those changes and incorporate  
20 them.

21           So it was recognized that as we moved  
22 towards more sustainable practices, as we recognized  
23 long-term environmental changes that these could be  
24 considered curves in the road that we needed to somehow  
25 incorporate into the program as opposed to assuming



1 that growth in the past is equivalent to growth in the  
2 future.

3 This left a small group of people in a  
4 bit of dilemma with respect to creating a strategy.  
5 Some of the concerns and needs of users were almost  
6 overwhelming and the decision was made or the solution  
7 to these was to develop a growth and yield strategy and  
8 work plan by first developing consensus or building  
9 consensus on these key issues and factors and the  
10 decision was to do so through a series of facilitated  
11 workshops where all the different thoughts and concerns  
12 could be boiled down, where those who had them could  
13 help find a solution to prioritize the needs, to build  
14 the consensus and to somehow consider this flexibility  
15 for the future.

16 The actual process that was chosen has  
17 been described to the Board. It was the one described  
18 by Dr. Peter Maktami. I think that was Panel 8, if I  
19 am not mistaken, MNR Panel 8 and in fact the company he  
20 represent, ESSA Limited, were the facilitators for this  
21 workshop process.

22 Now, the objective of those workshops was  
23 to produce a plan of work to improve forest growth and  
24 yield information and prediction in Ontario. It was  
25 relatively simple and straightforward.

1                   We knew that there was a host of areas  
2                   that needed to be examined as shown in this slide 8 as  
3                   the foundation for the modelling and prediction  
4                   concerns, the fact that that information needed to be  
5                   bounded on hard data, that there were research concerns  
6                   associated with that, that the question of  
7                   stratification for sampling needed to be dealt with, et  
8                   cetera.

9                   But what floated to the top and what is  
10                  shown in this slide is what was recognized or I guess  
11                  participants made it very clear that ultimately the  
12                  program must balance both the short term, a need for  
13                  short-term information as well as the need for  
14                  long-term proofs or answers, and from the outset of the  
15                  workshops it was recognized that the program was going  
16                  to somehow have to provide for short-term predictions  
17                  but somehow also in the long term provide the hard  
18                  proofs or answers to those predictions.

19                 There was a large number of participants  
20                 represented at the workshops from varied expertise and  
21                 points of views and those people brought their needs to  
22                 the workshop.

23                 In this slide you will see that the  
24                 process was controlled by a steering committee of six.  
25                 I apologize that the reproduction of the slides for

1 your use aren't particularly clear. Within the boxes  
2 it indicates those groups that were represented. You  
3 will see, for instance, the participants included close  
4 to 50 different areas and expertise and groups  
5 representing research institutions, the field and main  
6 office aspects of MNR, Forestry Canada, Algonquin  
7 Forestry Authority, Ontario Forest Industry  
8 Association, the United States Forest Service, the  
9 technical skills of ESSA themselves, academics, timber  
10 users and other users of information such as wildlife  
11 biologists, entomologists, fire ecologists. So we had  
12 a very broad range of people.

13 One of the first tasks at the workshop  
14 was to boil down program needs and that particular  
15 group started very simply by going around the room and  
16 listening to them and we started with close to 70  
17 different needs of a growth and yield program and  
18 through the workshop process those were boiled down to  
19 five major needs with some subcomponents and consensus  
20 was built around these needs.

21 The first was the obvious and urgent need  
22 to develop models for predicting growth and yield. It  
23 was recognized that that had to take into account  
24 species and forest type, management, consideration for  
25 pests and other disturbances and that it had to somehow



1 relate to the ecological regions and the sites within  
2 Ontario.

3 It was recognized that those models  
4 needed to be built on supporting data, hard data and  
5 that that would require an expanded system of temporary  
6 and permanent sample plots.

7 It was recognized that in order to  
8 collect that data there was a need for a province-wide  
9 ecologically based stratification system which I will  
10 get into in more detail in a few minutes.

11 It was also recognized or identified that  
12 the program somehow had to increase our knowledge and  
13 understanding of stand dynamics and the focus was on  
14 the major uncertainties of mortality, stand breakup,  
15 in-growth and dynamics of early growth; some of those  
16 factors that were shown on the earlier slide.

17 The last need that was identified was a  
18 need to be able to identify potential long-term changes  
19 in productivity due to either natural or human caused  
20 disturbances.

21 Now, by considering such a broad array of  
22 needs the concern arose that new questions might  
23 somehow override the long standing needs that had been  
24 in place for over a decade.

25 This was spoken to in program design

1 where the consensus of the participants was that the  
2 program should include core data collection and that  
3 core data collection would include basic or minimum  
4 measurements on all plots within the province and that  
5 those plots were related to the basic measures of tree  
6 growth.

7 When participants, non-forest  
8 practitioner participants were asked what they required  
9 in terms of growth many of the foresters who were  
10 concerned about these long standing needs were relieved  
11 to find that when in fact fire ecologists or wildlife  
12 biologists were forced to explicitly define what they  
13 required in terms of growth they were in fact the same  
14 measures of stem that many of the foresters were  
15 concerned about in terms of the long standing need.

16 So by creating a core set of measurements  
17 it was recognized that they would be satisfying many of  
18 the other users within the program as well.

19 It was also recognized that certain  
20 questions were local in nature or had to be -- had  
21 required separate studies or experiments to examine and  
22 that those studies should be related to the core  
23 measurements and, therefore, measured nearby in what  
24 was defined as an enhance program.

25 Some of these measurements were

1 destructive in nature and therefore could be taken from  
2 the buffer of the core plot, some of them could be  
3 taken right on the core plot and by defining the  
4 program this way it was recognized that core  
5 information could be funded and collected throughout  
6 the whole province and enhanced information could then  
7 speak to local needs or further requirements within the  
8 growth and yield program.

9           It was also recognized that strong  
10 linkages need to be maintained with the research  
11 institutions and some of the needs that were listed in  
12 their workshops or came out of their workshops in fact  
13 would have to be handled through separate research  
14 experiments.

15           Just briefly some of the elements of the  
16 enhance program, wood quality was one that was seen  
17 that would fall into the enhance program primarily  
18 because it is of a local nature and, therefore, minimum  
19 standards province wide couldn't be applied.

20           Dynamics of mature stands, timber  
21 management effects would require special studies, so  
22 treatment effects because in fact those treatments  
23 would have to be applied to a specific aspect of the  
24 plot and, in fact, those treatments varied throughout  
25 the province and, again, it would be difficult to set



1 minimum standards for the province.

2 Early stand development was seen as an  
3 aspect because of the research that would be required  
4 to answer this. Early stand development has been a  
5 long standing need because mensurationists have  
6 traditionally shyed away from it and started their work  
7 in forest growth and yield at age 20. There is a lot  
8 of interference in what is going on in the younger  
9 ages. So the way that that has been solved in the past  
10 is simply to skip it and start when that starts to sort  
11 itself out. This area is primarily where the linkage,  
12 for instance, to the VMAP program that you heard  
13 described yesterday would be made.

14 There is lots more that I could get into  
15 on major initiative, but I wanted to move on to the  
16 stratification system which was primarily the focus of  
17 your concern or your question.

18 Stratification system is, of course,  
19 necessary simply for locating plots on the ground with  
20 the greatest efficiency, but also taking into account  
21 in considering sources of variability that are known to  
22 exist.

23 It is also the method that ties the  
24 actual measurements to the ground and one of the  
25 concerns of the participants at the workshop was that

1 these measurements be tied to the ground in some  
2 ecological framework that would allow one to  
3 distinguish the differences in growth patterns, but  
4 also within a framework that other programs could plug  
5 into and, therefore, use the data.

6 Now, this diagram is somewhat simplistic  
7 but it indicates the dilemma when you are examining a  
8 stratification system in Ontario. The mensurationist  
9 starts by asking the question: Why does the tree grow  
10 the way it does and in this case why does the tree grow  
11 fast. That is one of the sources of variability they  
12 want to take into account in their stratification  
13 system.

14 Well, the answer is, it grows fast  
15 because it is on a good site. As I say, that's  
16 somewhat simplistic because there are other factors,  
17 but it is a primary thing related to the stratification  
18 system.

19 So they go to the site ecologist and ask  
20 them: Please tell me how you define a good site. The  
21 site ecologist will say: Well, it is a site that grows  
22 trees fast. So you are into a circle and what we are  
23 really saying is that the site ecologist when they are  
24 doing their site descriptions require growth and yield  
25 information to separate their sites. The growth and

1       yield people need solid site information to stratify  
2       and collect that information and neither are in place.

3               So one of the things that was required at  
4       the workshop was to break this cycle and get on with  
5       the job somehow by developing some sort of site  
6       framework that would allow growth and yield information  
7       to be collected, but which in turn would feed back to  
8       the site program and confirm site descriptions.

9               So in this sense the growth and yield  
10       program is inextricably linked to ecological land  
11       classification or any other site classification program  
12       and, in fact, it is why on our earlier history slide  
13       those forest ecosystem classification development data  
14       collection also included some aspect of growth and  
15       yield.

16               Now, there are other necessary  
17       characteristics of a stratification system and I won't  
18       go through the total list here, but it obviously has to  
19       be practical, has to be something that when you are  
20       putting plots on the grounds -- you are missing that  
21       slide?

22               MADAM CHAIR: We have it.

23               MR. GREENWOOD: Practical in terms of  
24       application when you are putting the plots in the  
25       ground and it has to be hierarchical in that you have



1 to be able to start with something like the Province of  
2 Ontario and somehow end up on a very specific piece of  
3 ground. It has to be unambiguous and it also has to be  
4 complete for the whole Province of Ontario to initiate  
5 a province-wide program.

6 It also has to be integrated in a way  
7 taht allows other programs and projects to link with  
8 the growth and yield program and utilize the  
9 information coming from it.

10 Ontario obviously is a very large  
11 province and the first strata or level of this hierachy  
12 that divides the program utilizes an existing  
13 framework. The participants at the workshop felt that  
14 it was important to go with existing information where  
15 it existed and they chose a document that was produced  
16 by Environment Canada in 1989 entitled Ecoregions of  
17 Ontario. It was a document produced by Wickware and  
18 Rubic and it in fact divided the province up into 12  
19 regions or ecoregions based on ecological, phyical and  
20 climatic differences throughout the province.

21 Now, this particular project built on  
22 existing information within the province primarily  
23 created by Angus Hills and, in fact, the basis of the  
24 site regions which have been I think described to the  
25 Board in earlier testimony. So it is very close to the

1 site regions. The only difference is that it has  
2 include some refinements as a result of better climatic  
3 data that Angus Hill had back 20 and 30 years ago. So  
4 that was the first division of the province.

5 The second level of stratification is  
6 based on species and the participants defined a number  
7 of primary species that they were interested in.

8 The third level of the stratification  
9 took into account the relative abundance of those  
10 species as they were growing. They way that they  
11 divided it was areas where those species were growing  
12 basically in a pure situation where they were -- one of  
13 the species was somewhat dominant and where they were  
14 growing in a true mixedwood condition. So they were  
15 attempting to sample across this range of species  
16 combinations.

17 At that point in the stratification  
18 scheme is splits. So the first three levels in the  
19 hierarchy are similar for the total province. At that  
20 point in time the stratification splits to recognize  
21 even aged conditions and all age conditions. So  
22 basically reflecting conditions that would normally be  
23 found in the boreal boreal forest versus the Great  
24 Lakes/St. Lawrence Forest.

25 Now, your next supply is rather

1 complicated and I don't intend to go through all of it,  
2 but it does show in fact what I did want to indicate,  
3 that the stratification system is complicated. It was  
4 one of the more difficult parts of exercise in that it  
5 does determine where and how plots will be installed  
6 and, therefore, some of the efficiencies of data  
7 collection and obviously, therefore, the cost of data  
8 collection.

9               So on this you can see simply the top  
10 three levels of stratification are similar for the  
11 whole province, then within the even aged where in fact  
12 even aged characteristics are found they have included  
13 one extra level of stratification and that's maturity  
14 class. This recognizes that in the all age forest you  
15 are managing all maturity classes at the same time  
16 where in the even age forest this is not true. So it  
17 is absent from the right-hand side of your graph under  
18 all age characteristics.

19               The last level of stratification is then  
20 ecosite and just at the bottom you will notice that  
21 there were also post-stratification criteria. So these  
22 were factors that would not be used to locate sites,  
23 but are important to include once you have found a  
24 site. So they are criteria that would be measured and  
25 examined after you had located your site. So, for



1 example, some of the stand treatments are included as a  
2 post-stratification criteria.

3 I didn't describe ecosite and how that's  
4 located. When the forest ecosystem classifications  
5 were described to the Board they were described as  
6 indicating a part of a stand that can be described by  
7 various criteria, generally soils and vegetation.  
8 Those would be the equivalent of an ecosite. It would  
9 have been nice if one consistent forest ecosystem  
10 classification system was in place for the province,  
11 but that has not been completed yet.

12 So in order to have a complete  
13 stratification system for the province, the group, the  
14 participants had to back away from that, but their  
15 choice was to go to the basic common information which  
16 is included in the forest ecosystem classification and  
17 they chose a two-dimension grid of soil moisture and  
18 soil richness which is in fact the foundation of the  
19 forest ecosystem classification.

20 As you can see on this slide 19, there is  
21 a gradient in both of these axes and they attempted to  
22 define, for instance, one grid on those axes and this  
23 would be a common system for the whole province. That  
24 describes the stratification system.

25 Your question was how it related to

1 ecosystem classification and you will see that from the  
2 first slide it is inextricably linked to it, however it  
3 did not create a land classification. It attempted to  
4 use ecological site descriptors to stratify the same  
5 ones that would be used in an ecological land  
6 classification. The attempt was to use those in a way  
7 that would allow this to mesh and integrate with a  
8 final ecological land classification as it was  
9 developed, but without having one in place the program  
10 was forced to go ahead and use factors which would  
11 allow them to strategy the province but base it on the  
12 same type of ecological factors.

13               So in summary, the initiative was built  
14 by consensus using a broad range of expertise, needs  
15 and concerns. The objectives and desire go beyond  
16 traditional stemwood quantification which is  
17 characteristic of many growth and yield programs to  
18 satisfy other values and future needs of foresters.

19               It is ecologically based and will temple  
20 dynamics within the forest to many other programs. It  
21 provides for some short-term predictions as well as  
22 long-term answers recognizing that most users did not  
23 want to wait 20 years for the information and it is  
24 province wide in its implementation which is underway  
25 now.

1 MR. FREIDIN: Madam Chair, can we mark as  
2 the next exhibit --

3 MADAM CHAIR: Excuse me, Mr. Freidin, I  
4 have a question for Mr. Greenwood.

5 Mr. Greenwood, my question is I guess not  
6 really related to growth and yield, but we listened to  
7 MNR foresters discussing growth and yield, as you  
8 pointed out, in Panel 8 which was some time in 1989 or  
9 something and it is interesting to me as I listen to  
10 you talk about it now a few years later that the  
11 vocabulary has changed a great deal and you now talk  
12 about ecological landscape classifications and there  
13 are different words that you used.

14 The Board, of course, has observed this  
15 with great interest because it has been obvious for the  
16 last 18 months -- well, for the last 18 months I guess  
17 that the way foresters are talking about forestry is  
18 changing. The way you describe what's happened and  
19 what you are going to do has been changing and the  
20 Board is still -- I guess we are still undecided about  
21 whether a lot of this is still very conceptual and very  
22 esoteric and very unproven or in fact if this is very  
23 much the way foresters have adjusted their thinking in  
24 the words they are using.

25 In other words, the way you have



1 described growth and yield, you have used different  
2 words to describe it, but the idea as we did hear in  
3 1989 with some changes, and I am sure 15 or 20 years  
4 ago you would have talked about some of the same  
5 concepts with different language.

6 I guess what Mr. Martel and I try to do  
7 at all times is think very clearly about what we are  
8 actually seeing in front of us and I guess I would just  
9 like to you summarize for us what's very different from  
10 what we were told in 1989 versus what we are being told  
11 today.

12 My understanding of what you are saying  
13 is you are trying to move into these new ways of  
14 describing and measuring the landscape and you are  
15 trying to give everyone some immediate answers about  
16 forest productivity as well.

17 MR. GREENWOOD: What you are describing I  
18 think is in fact a dilemma that this first small group  
19 that created the first strategy found when they sent it  
20 out for comment.

21 Both types of thinking and language were  
22 still out there, are still out there, but in fact what  
23 we are seeing I think is part of the natural evolution  
24 within the practice of forestry that's probably gone on  
25 for decades.

1                   This particular exercise I think is a  
2                   good one in terms of a continuing development that  
3                   shows just how that normally takes place. When in fact  
4                   that rather traditional strategy was put out in 1989  
5                   what they found was quite a reaction. There were  
6                   different points of views, there were points of views  
7                   that in fact it was too wide, that until we answered  
8                   those long standing stemwood needs we shouldn't be  
9                   looking at anything else because in fact we are making  
10                  predictions in fairly sophisticated models now and  
11                  those are mandatory.

12                 We also found some of the foresters  
13                 saying: Wait a minute, this is the 1990s. This is a  
14                 long-term program, a multi million dollar program and  
15                 if at the end of all of this all we have is stemwood  
16                 prediction we are going to be in 30 years where we are  
17                 now which is a lack of information.

18                 We should be attempting to build in  
19                 future needs, future concerns, in fact some current  
20                 concerns that you wouldn't traditionally build into a  
21                 growth and yield program. So we that dichotomy of  
22                 information coming back.

23                 We also had other users that we didn't  
24                 expect to be users asking for information from a growth  
25                 and yield program, a forest growth and yield program

1 for their work recognizing, again, that it is a  
2 long-term program, a very expensive program and if you  
3 are going to be collecting information you should also  
4 be collecting this little extra piece of information  
5 that's going to help me do my job.

6 The group was faced with this exploding  
7 program to satisfy past demands, current needs,  
8 potential future needs, all other users' needs and I  
9 think that series of needs reflected some of the change  
10 in thinking within the whole area.

11 The task then was to boil that down into  
12 a practical program and this program that I have  
13 described is as a result of that exercise. So it in  
14 fact includes some of the traditional stemwood needs,  
15 it includes some ability to potentially be flexible and  
16 have enough information so that the program can answer  
17 future needs and grow with changing demands and it also  
18 satisfies some of the other users, some of the --  
19 actually when I say other users that is a misnomer  
20 because in some cases it is foresters who are  
21 recognizing some of the future needs that they are  
22 going to have to answer such as forest structure which  
23 hasn't been generally a major concern of theirs over  
24 the last two or three decades.

25 So I think just in summary again you are



1       seeing some of the evolution which normally takes on so  
2       you are hearing some of the language, that language  
3       that we used five years ago, some of the changes in  
4       that language which reflects change in thinking, change  
5       in needs, demands and concerns and this program  
6       happened to get, as all long-term programs, having to  
7       satisfy both the past and the new and, therefore, you  
8       are hearing some of that language in the program.

9                       I don't know if that answers your  
10       question, but...

11                      MR. MARTEL: Well, it might leave me more  
12       confused than ever.

13                      I think of yesterday's discussion with  
14       Mr. Kennedy and I think of the terms that have changed  
15       by the various parties and the new buzzwords like  
16       landscape management which appeared in I believe it was  
17       Forests for Tomorrow's second set of Ts and Cs, I might  
18       be wrong, but around 1990 those buzzwords.

19                      What if it is all wrong? I mean, what if  
20       we found out now, ten years from now that all the  
21       buzzwords about landscape management, and that's what  
22       you are asking this Board to order or decide, yet we  
23       can't get consensus in this room. What if it is all  
24       wrong and it falls flat on its proverbial derriere 10  
25       years from now. When are we then?

1                   MR. GREENWOOD: That's obviously a very  
2 major concern of any long-term expensive program. I  
3 wouldn't get -- I can only speak personally here, but I  
4 wouldn't get too hung up on buzzwords.

5                   What we found, and I am in an area now of  
6 program development, that's my day-to-day job, taking  
7 results of science and attempting to put those into use  
8 in a province-wide program. So I am involved with the  
9 landscape ecology program, the ecological land  
10 classification program and what I have personally found  
11 when I go out to practitioners who are my colleagues of  
12 not that long ago with a new concept, with a new  
13 buzzword around it they are very skeptical too. So  
14 there is a built in test.

15                  What in fact happens or has happened in  
16 some of the programs that we are attempting to build  
17 and put in place is that that program needs to be put  
18 into the context of a concern or a problem that they  
19 have identified for many years. They just haven't put  
20 the buzzword to it.

21                  So when you put a program like landscape  
22 ecology into place it will never fly, it will never  
23 become practical and used unless it is speaking to some  
24 of those concerns of the practitioners and although  
25 they may not have all the buzzwords they do have the

1 problems and the concerns, and though the area of  
2 science may have all the buzzwords, if it doesn't speak  
3 to those problems, practical problems and concerns it  
4 won't have a very long life.

5 So the buzzwords are there undoubtedly  
6 and they get picked up on and they get used, but each  
7 one of those should be able to be boiled down to a set  
8 of concerns or problems on the ground and if in fact it  
9 isn't, then my experience is it doesn't last very long.

10 MR. MARTEL: But that's the problem for  
11 the Board. If it happens to be wrong it might not last  
12 very long, but in fact that's what will be represented  
13 somewhere if the order that we are going to write in  
14 the next year.

15 I think I speak for my colleague, our  
16 concern is what if it isn't right? That's the  
17 worrisome part. Hopefully with all the knowledge  
18 that's been brought together and the experience we are  
19 on the right track, but what if we are wrong, or is it  
20 as revolutionary as it appears?

21 MR. GREENWOOD: In terms of what if we  
22 are wrong, again I am using -- I know your question is  
23 broader than the growth and yield program, but I am  
24 going to use the growth and yield program as an  
25 example.



1                   The way that that was tested, and I am  
2 not sure that it was an intent, but the way that was  
3 tested in this particular program development was to  
4 bring together the broadest and the best expertise we  
5 have in that area and to get that thinking developed  
6 from those people.

7                   So if the program is wrong it has been  
8 wrong with the participation of close to 50  
9 participants, a host of different agencies represented.  
10 So it is very, very wrong. Hopefully that process  
11 would have picked that up.

12                   In that sense I guess I would go back to  
13 Dr. Baskerville's evidence that you have to go forward  
14 with what -- lack of information is no reason not to  
15 change. You bring the best expertise together that you  
16 can, you allow that expertise to develop a particular  
17 program and then you test that program and if in fact  
18 it is wrong you have your best expertise at that time  
19 to correct it and give you have the best direction  
20 again.

21                   So in that sense it is not a hundred per  
22 cent reflective of what he was saying, but in fact the  
23 sense the core of it is there and I think that may be  
24 an answer.

25                   MR. FREIDIN: Madam Chair, could we mark

1 as the next exhibit a series of overheads to be used by  
2 Mr. Gordon in his presentation. They are entitled The  
3 MNR's Response to Forests for Tomorrow's Silvicultural  
4 Guidelines and the overhead is 10 pages in length.

5 MADAM CHAIR: These overheads will become  
6 Exhibit 2303.

7 ---EXHIBIT NO. 2303: A series of overheads entitled  
8 The MNR's Response to Forests for  
9 Tomorrow's Silvicultural  
Guidelines.

10 MR. GORDON: Good morning, Madam Chair,  
11 Mr. Martel. Probably the best thing to do is to number  
12 the overhead pages before we begin.

13 picking up on your comment, Madam Chair,  
14 about hearing all this new jargon and buzz words, I  
15 think we should also recognize, and you are probably  
16 going to see that in my presentation, that there is no  
17 question that in some areas we should be moving in new  
18 directions and changing. Sometimes it is our position  
19 that some of the things that we have done in the past  
20 are still appropriate and proper if we are going to  
21 properly renew our forests.

22 MNR has reviewed FFT's silvicultural  
23 proposals which they presented in their 1992 edition of  
24 their terms and conditions and we undertook a very a  
25 very serious review. We've had quite a number of

1 people involved in the review.

2 My task is to present you with a summary  
3 of our concerns relative to FFT's silvicultural  
4 proposals and when I talk about silvicultural proposals  
5 in this discussion I am specifically talking about FFT  
6 term and condition 27, 28, 29, 32, 33 and 34 and we  
7 should be on overhead No. 2.

8 We have summarized our concern in the  
9 witness statement on pages 30 to 31 and we have  
10 provided a detailed critique at Tab 3 which included  
11 contributions by 12 individuals.

12 I am going to try and avoid going into  
13 the detail that is within our critique and just  
14 highlight some of the main points. We feel that for  
15 many of the silvicultural proposals that FFT is putting  
16 forward that there is not a solid foundation in current  
17 science, and as well we believe that in many cases the  
18 experience within Ontario is contrary to the proposals  
19 that they are putting forward.

20 We are very concerned about the  
21 restrictions that are included within the proposals  
22 that limit your ability to carry out the proper  
23 silviculture relative to the site and properly renew  
24 the forest.

25 We also believe that the Board should be



1 aware of the operational implications if you were to  
2 accept their proposal.

3 In our analysis, and looking at the words  
4 and the different clauses and how they relate to each  
5 other, we are concerned about the clarity of FFT's  
6 proposal and to be blunt, we are concerned about the  
7 lack of clarity.

8 Finally, we are concerned if the Board  
9 ordered this package of proposals, we are concerned  
10 about the long-term impact of these package of Ts and  
11 Cs on long-term forest structure and composition and  
12 the forested landscape in general terms.

13 Moving on to overhead No. 3 and picking  
14 up on the idea that we feel that FFT's silvicultural  
15 guidelines, as they call them, are too restrictive in  
16 our opinion. In general terms we believe when you read  
17 the words and make an interpretation of those words  
18 that in front of you in those Ts and to Cs that to a  
19 very large degree FFT's silvicultural proposals rely  
20 almost exclusively on natural regeneration.

21 The Ministry of Natural Resources and the  
22 forest industry in their attempts to renew the forest  
23 rely on a mix of artificial and natural regeneration  
24 techniques and we feel we must have the ability to use  
25 a mix of techniques and we should realize that we are

1 only aggressively planting approximately 30 per cent of  
2 the harvest area.

3 Sometimes I get the impression that  
4 people think that we are planting much larger or higher  
5 percentage of the harvest area. In actual fact we are  
6 planting a relatively small percentage of the harvest  
7 area.

8 MADAM CHAIR: Excuse me, Mr. Gordon. In  
9 fact, you might be doing artificial generation on less  
10 than 30 per cent of the area and your artificial  
11 regeneration program is very dependent on the funds  
12 available apparently.

13 Is it the position of MNR that although  
14 maintaining certain levels of artificial regeneration  
15 might be out of your control depending on the funding  
16 that is available that you would want to devote as many  
17 resource to artificial regeneration as you could?

18 When you look at the 30 per cent that has  
19 some historical basis, is that a target or is MNR's  
20 position that given the size of the budget you would  
21 like to see you would like to do as much artificial  
22 regeneration as you could?

23 MR. GORDON: Well, first of all, whatever  
24 our budget is, what MNR would like to do is use that  
25 money in such a fashion that we get the biggest bang

1 for those dollars which in our submission means that we  
2 would have to use a mix of artificial and natural  
3 regeneration treatments.

4 If the dollars available to us are being  
5 reduced, then we have no alternative but to rely on  
6 natural regeneration.

7 What I am saying to you, though, is if we  
8 move further in that direction our ability to properly  
9 renew the forest will be reduced and so in many cases  
10 we are just going to have to accept what comes back on  
11 that site which will mean in many cases a dramatic  
12 shift to hardwood species and within the conifer  
13 component that's coming back it increases balsam fir.

14 I don't think it is that we are trying  
15 too much artificial regeneration. I think the real  
16 problem, and my person point of view, is the funding  
17 level that's available or not available so that we have  
18 the ability to carry out the appropriate renewal  
19 treatments for the sites that we are encountering and  
20 for the management objectives that we are trying to  
21 achieve.

22 We feel that the management objectives  
23 within a given management unit and the site conditions  
24 should dictate the appropriate techniques for use and  
25 we feel that having simple guidelines as proposed by



1 FFT is an inappropriate direction to follow. We also  
2 note that FFT in a number of cases proposes very  
3 specific clearcut size limits such as 50 hectares for  
4 poplar and 100 hectares for jack pine and we are not  
5 aware of any science that supports such arbitrary  
6 limits.

7 MR. MARTEL: Mr. Gordon, in your opinion  
8 do these restrictions of 50 hectares and a hundred  
9 hectares, how could that possibly tie into landscape  
10 management then?

11 MR. GORDON: Well, in my opinion it  
12 simply doesn't. I believe that such restrictions are  
13 contrary to where I believe landscape management wants  
14 to go.

15 When mother nature is doing her thing and  
16 she is burning a poplar stand or a jack pine stand she  
17 doesn't stop at 50 hectares or a hundred hectares. She  
18 burns at a mix of sizes.

19 I think as we try to become more  
20 sophisticated as we move towards landscape management  
21 such arbitrary limits will stop us from trying to  
22 emulate to some degree within our capabilities what's  
23 happened in the natural arena.

24 I hope to come back to that point a  
25 little later on another overhead, please.

1                   MADAM CHAIR: Mr. Gordon, I have a  
2 question. I think it is for the lawyers that are here  
3 and not you, but will the Board be receiving in final  
4 argument any final terms and conditions of the parties?

5                   Will the Board be informed about whether  
6 there will be more change in the terms and conditions  
7 than what we have before us now and, of course, we are  
8 operating with MNR's January '92 version and the  
9 parties March '92 version of their terms and  
10 conditions.

11                  MR. FREIDIN: Madam Chair, I can advise  
12 that, firstly, the rules of the Board contemplate in  
13 fact final recommended terms and conditions being part  
14 of argument and I can advise you that the Ministry of  
15 Natural Resources will in fact be filing another set of  
16 terms and conditions. There will not be numerous  
17 changes thereto, but I can indicate to you now that  
18 there will be some changes.

19                  MR. LINDGREN: Madam Chair, on behalf of  
20 FFT I can indicate that we too will be filing final  
21 terms and conditions.

22                  Again, we don't expect that there will be  
23 extensive changes to the term and conditions. However,  
24 and this is apropos this discussion, we do contemplate  
25 a revision of the silvicultural guidelines. So that's

1 coming.

2 MS. GILLESPIE: Madam Chair, the Ministry  
3 of the Environment is also intending to file final  
4 terms and conditions with written argument and I can  
5 also advise that there are still some discussions going  
6 on with the Ministry of Natural Resources to try and  
7 reach agreement on some terms and conditions with them.

8 MR. CASSIDY: The OFIA is in the same  
9 position. We intend to file a final set basically as  
10 an appendix to our argument and it reflects ongoing  
11 discussions among the parties.

12 We don't expect extensive changes, but  
13 there have been some concrete positive suggestions made  
14 since the last filing which was essentially a result of  
15 negotiation sessions. Further discussions are carrying  
16 on and we would like to reflect those in our final  
17 terms and conditions.

18 MADAM CHAIR: Thank you.

19 Could we continue, Mr. Gordon.

20 MR. GORDON: Madam Chair, Mr. Abraham  
21 advises me that perhaps I missed the nub of one of your  
22 questions and I am going to try it again, the question  
23 about the 30 per cent artificial regeneration.

24 If the question was, is that a level that  
25 we would stay at over time if we had more money, I



1 think the answer would be that where we develop natural  
2 regeneration techniques that would achive our  
3 management objectives relative to wood supply landscape  
4 management, then we would use such techniques, but in  
5 some locations we would on some management units have  
6 to increase the use of artificial regeneration if the  
7 dollars are available to achieve long-term wood supply  
8 forest structure and landscape managment objectives as  
9 we become more sophisticated.

10 Of course, on overhead No. 4, why do we  
11 still want to have the ability to use artificial  
12 regeneration when we feel it is appropriate. It is our  
13 submission that natural regeneration does not work on  
14 all sites.

15 For example, in the black spruce working  
16 group where under FFT's silvicultural proposal they are  
17 requiring strip cuts, there are many sites within the  
18 black spruce working group where there are significant  
19 competition problems and if we don't deal with those  
20 competition problems and if we don't put conifer back  
21 on the site through artificial regeneration techniques  
22 the conifer component on those sites will be  
23 significantly reduced in the future versus what was  
24 there when they were harvested.

25 Another proposal, although it does give

1 us some room to maneuver, they say when it is  
2 appropriate, within their discussion on mixedwood  
3 management they emphasize that we should try to use the  
4 white spruce seed tree method.

5 It is the experience in Ontario that by  
6 and large it is a very unreliable method. There will  
7 be one in a hundred chance or whatever that you may  
8 have all the right conditions come together that it  
9 will work.

10 White spruce very often does not have a  
11 large cone production except for every 10 years and the  
12 seed is usually released from the cone in September or  
13 October. So to take advantage of that you would have  
14 to be able to accurately predict when such a cone crop  
15 is coming and as well your harvest would have to be  
16 specifically timed to coincide with that cone  
17 production, and as well you would have to do some site  
18 preparation to prepare the ground for the white spruce  
19 seed, but it would be very necessary to deal with the  
20 competition problem that also is found on many of the  
21 sites where white spruce grows.

22 In my experience in Manitouage during the  
23 10 years we only had one year where there was a  
24 reasonable white spruce cone crop.

25 While we agree that the uniform

1 shelterwood has many applications on the sites that  
2 white site is found on we believe that clearcutting is  
3 appropriate on some sites but is not allowed by their  
4 guidelines.

5 On some sites where you want to ensure  
6 that you have a white pine component in the new forest,  
7 very often in the old forest there is a very small  
8 component of white pine and the only way you can ensure  
9 a reasonable component of white pine in the new forest  
10 is by planting white pine.

11 In some cases because of historical  
12 highgrading over the last couple of hundred years we  
13 have removed the white pine and if you want to bring  
14 back white pine you have to plant it.

15 As far as I understand in talking with  
16 Peter Hynard in reviewing the tour itinerary for your  
17 site visit in the Minden area, I believe Mr. Hynard  
18 showed you a site where he felt it was necessary to  
19 plant white pine and I believe he also showed you on  
20 that same field trip, and it relates to my next point,  
21 a site where he felt it was appropriate to clearcut  
22 tolerant hardwood and that there was enough advanced  
23 regeneration on the forest floor that it was  
24 appropriate to clearcut these stands. By clearcutting  
25 you can tend to favour some sites, some species that



1 require more light.

2 When we stand back for a moment and look  
3 at FFT's silvicultural proposals, in their FFT No. 29  
4 we feel that what they are proposing in that term and  
5 condition is often inconsistent with the intent that  
6 they have expressed elsewhere in their proposals and on  
7 the bottom of overhead No. 4 I give you some examples.

8 MR. FREIDIN: Q. Just generally what is  
9 29?

10 MR. GORDON: A. That's where they  
11 explicitly detail their silvicultural guidelines for the  
12 different stand types or working groups.

13 Yet prior to condition 29 they put  
14 forward some general principles and criteria where they  
15 want us to maintain site productivity relative to  
16 existing species, yet they do not want us to use some  
17 of the techniques that's necessary to meet that  
18 objective.

19 We also note that in FFT condition No. 34  
20 they are asking the Board to order us that harvest  
21 areas must be rapidly regenerated and natural  
22 regeneration on many sites will not achieve that  
23 laudable objective.

24 The purpose of overhead No. 5 is just to  
25 make the Board aware of some of the operational

1 implications of their proposals.

2 It should be recognized because of the  
3 large number of very small cuts that will be required  
4 within their proposal that there will be a significant  
5 increase in harvest layout planning time both in the  
6 office and in the field.

7 As well, the resulting prescriptions will  
8 require an order of magnitude increase in marking  
9 harvest boundaries because of the number of cuts, small  
10 cuts.

11 As well, and of great concern to MNR is  
12 that within their package they are proposing that MNR  
13 do all such marking. That is term and condition 69.

14 It should also be recognized that to  
15 deliver their proposal an accelerated road construction  
16 program is required over a significant number of years,  
17 and as well over the long term there will be  
18 requirements and costs because of an expanded road  
19 maintenance and reconstruction program.

20 We also note that in FFT No. 33 that they  
21 categorically say that all prescribed burn areas must  
22 be mechanically site prepared. We do not understand  
23 the reason for this because it has been our experience  
24 that for some prescribed burns that you can go in and  
25 plant trees, establish the stand without carrying out

1 mechanical site preparation, and as well we do not  
2 understand what they mean by this being required  
3 because of the need to meet biological reactivation  
4 requirements. We find that when we plant prescribed  
5 burn areas they grow very well. So we think there is a  
6 lot of good biological things going on on those sites.

7 While what might be driving FFT to such a  
8 proposal may be a good principle, in all cases it is  
9 not necessary to do what they say in this T and C  
10 relative to all Pb sites.

11 Q. Excuse me, Mr. Gordon.

12 Mr. Armson, do you have any views on the  
13 term and condition that Mr. Gordon just referred to,  
14 FFT 33 that refers to biological reactivation?  
15 Perhaps I could just read that to you. 33 says:

16 "Where a prescribed burn is conducted  
17 scarification shall be conducted on the  
18 burnt areas to achieve biological  
19 reactivation of the humus upper stratas."

20 Do you have any comment on that?

21 MR. ARMSON: A. Yes, I do, Mr. Freidin.

22 For the Board's information, in fact  
23 after a fire, whether it be a prescribed burn or a  
24 natural burn, there is in the forest floor always what  
25 is termed here as biological reactivation; In other



1 words, there is more active -- because of the exposure  
2 to increased temperature, because of the increases  
3 moisture there is more microbiological activity.  
4 Scarification in itself isn't necessary to bring that  
5 about.

6 MADAM CHAIR: Mr. Gordon, before we leave  
7 this page, Forests for Tomorrow is not the only one who  
8 is calling for MNR to become more active in marking  
9 boundaries, operational boundaries, buffers, harvest  
10 areas, whatever.

11 We have heard a lot of evidence, as you  
12 know, at our satellite hearings from apparently  
13 disgruntled loggers and small contractors who would  
14 rather not make mistakes and then be kicked around  
15 because they have trespassed boundaries or have not  
16 done something properly and we have also heard from  
17 OPSEU that they think that the province should be more  
18 active in marking boundaries.

19 The Board has in front of it your answer  
20 to one of our interrogatories in which you describe for  
21 us how MNR has for a number of years now been passing  
22 on increasing responsibility to industry to mark  
23 boundaries and how there was some adjustment with  
24 respect to that program taking on some different  
25 complexion in the northern region in 1990 or '91.

1 I guess what the Board would like to hear  
2 from someone on the panel is that the Board assumes  
3 from what we have heard from you before is that you  
4 don't have the staff and the resource to mark every  
5 boundary there is in the area of the undertaking with  
6 respect to timber management operations, but we want to  
7 know whether MNR has given any consideration to  
8 responding to what is obviously some discontent among  
9 people who are both in industry and other areas.

10 MR. GORDON: Well, maybe I will give you  
11 a couple of my ideas and Mr. Kennedy may add to them.

12 It has been my experience in Manitousage  
13 that, first of all, at least the companies that I was  
14 dealing with, the largest companies, that they have the  
15 capability to mark the boundaries as well as we do.

16 So, therefore, in no way would I support  
17 personally a term and condition that requires us to  
18 mark all boundaries. Where someone else is doing the  
19 work and they are doing it well I would prefer that  
20 they continue to do so.

21 It has been my experience in the Terrace  
22 Bay District in dealing with small operators that  
23 sometimes they do not have the expertise to mark the  
24 boundaries and that probably varies from location to  
25 location within the province and, therefore, we mark

1 the boundaries and sometimes we would be accompanied by  
2 the small operator if he had time and sometimes we  
3 would not. The way we were doing it in the Terrace Bay  
4 District worked very well.

5 Perhaps for a provincial perspective I  
6 will turn to Mr. Kennedy, unless you want...

7 MR. KENNEDY: Madam Chair, marking comes  
8 into being really in three situations. In southern  
9 Ontario marking is often used to describe individual  
10 tree marking that is done in conjunction with harvest  
11 operations and/or improvement cuts. That's really not  
12 what we are talking about here.

13 In northern Ontario we talk about marking  
14 of boundaries on the outside of cuts and we also talk  
15 about marking of reserve areas or area of concern areas  
16 within the cut boundaries.

17 In those two situations it has been the  
18 practice years ago for MNR to mark boundaries in  
19 conjunction with the companies.

20 Historically there was opportunities  
21 under the Crown Timber Act to pass on some of those  
22 obligations to the companies or to the licensee  
23 involved in the operation. I believe that those  
24 procedures that were in place or indeed in the Crown  
25 Timber Act were primarily directed towards the marking



1 of the outside boundaries, the licence boundary.

2 As our program, timber management, has  
3 evolved over the years, as we got into more actively  
4 dealing with other values on the landscape and putting  
5 in place programs that were the forerunner to what we  
6 now know as area of concern program, the burden, if I  
7 could use that phrase, of marking certainly grew.

8 It was during experiences like that  
9 confronted with a large marking program that MNR has  
10 taken on some of the responsibility in marking which  
11 you are correct in that it continues to be a  
12 considerable amount of work effort.

13 The important thing is, though, that  
14 marking is required, is needed and we need to strike a  
15 balance between the type of marking that's conducted in  
16 the field, who is responsible for it, who bears the  
17 cost of that marking.

18 A number of the concerns I think that the  
19 Board had heard during community visits did come from  
20 small operators, I think in one particular part of the  
21 province, where the district staff, regional staff had  
22 made some efforts to try and pass that responsibility  
23 on directly to the smaller licensees.

24 Many of them, as Mr. Gordon points out,  
25 do have the capability, others do not. In some cases

1 it is a question of technical expertise. There is no  
2 doubt about it.

3 I believe in the answer to the  
4 undertaking that we have recently provided to you we  
5 have indicated that indeed those districts have  
6 re-evaluated the situation and have refined which  
7 operators they will pass that responsibility on to. In  
8 those area where there was some difficulties expressed  
9 by the operators themselves, MNR has taken on that  
10 responsibility of marking again.

11 Other situations though, as Mr. Gordon  
12 points out, and indeed from my own experience there are  
13 many companies that have qualified staff that conduct  
14 marking on their own to our satisfaction. I can also  
15 speak from my experience, in many situations there is a  
16 combined effort by Ministry and Industry staff in  
17 putting the marking in place.

18 I would like to take a moment, though,  
19 and say that the marking that is deemed to be necessary  
20 in addition to the boundary marking, outside boundary  
21 marking, often comes up as a result of determining  
22 specific prescriptions through the area of concern  
23 process.

24 In the case where that marking has gone  
25 on there are specific objectives in mind as to protect

1 values or delineate where certain practices should  
2 occur on the ground.

3 It is those types of situations where MNR  
4 uses the area inspection process as part of the  
5 monitoring program to ensure that the boundaries have  
6 been put in the proper place and efforts are made to  
7 ensure that it's done at the outset of operations and  
8 indeed those are inspected during the operations being  
9 conducted.

10 So there is a check and balance to ensure  
11 that the good planning effort, if I can word it that  
12 way, that has gone on in the development of the timber  
13 management plan does get transferred over to the  
14 operations as the plan is implemented.

15 MADAM CHAIR: A final comment, Mr.  
16 Kennedy, and that is when you analyse the complaints  
17 that we have received from the public at the community  
18 hearings many of them fall into that category of people  
19 who have been angry because a cut was not conducted the  
20 way they thought it should have been and that might  
21 have been an infringement on a cross country ski path  
22 or through a canoe portage or something that went  
23 wrong, that some sort of supervision would have avoided  
24 maybe in some cases.

25 I guess the Board simply wants to know in



1 those situations that you refer to as the AOCs and the  
2 inspection process, that seems to be the point at which  
3 you want to avoid those kinds of problems with the  
4 public.

5 MR. KENNEDY: I agree that there are  
6 situations where we do want to avoid difficulties with  
7 the boundaries.

8 As indicated, with the increasing number  
9 of area of concerns that are put in place to protect  
10 values that there is an added burden and that it cost  
11 to ensure that field operations are conducted in the  
12 proper place.

13 We use the marking program to do that.  
14 It is proper for -- I believe it is proper for Industry  
15 to question where the responsibility and costs that  
16 they must bear in that program, where that begins and  
17 ends. It is the subject matter of some discussion  
18 between Industry and MNR on a manner of how we conduct  
19 our business.

20 I should also point out, Madam Chair,  
21 that indeed there are situations that are arise where  
22 boundary marking has been conducted either by the Crown  
23 or by the Industry and there are mishaps.

24 It would be wrong for me to suggest that  
25 once the boundary is in place that it automatically

1 means that no operations will cross the line. That is  
2 not the case.

3 There is, of course, human error  
4 involved, there is careless necessary at times and  
5 there is simple poor marking, insufficient delineation  
6 of those boundaries on the ground. There can be  
7 occasions where the situation could arise that the  
8 boundary, the line has been delineated on the ground in  
9 the improper location.

10 It is for those reasons why we have  
11 programs like the area inspection program to monitor  
12 the operations and to monitor the boundary marking.

13 I should also point out that in one  
14 situation in our terms and conditions dealing with  
15 tertiary road placements we provided the opportunity  
16 where if a concern has been raised by the user to  
17 provide them the opportunity to assist in the actual  
18 flagging of tertiary road locations and that is also  
19 another angle which comes into play over marking.

20 I believe, Madam Chair, you have raised  
21 some issues in regards to the evidence that came  
22 forward through OPSEU in regards to marking. That is  
23 an outstanding task we have and I expect to get back to  
24 you in the next two weeks and that will be some  
25 additional information on the issue of marking.

1                   MADAM CHAIR: Mr. Freidin, just a  
2       clarification from you. Mr. Kennedy referred a moment  
3       ago to an agreed term and condition about marking  
4       tertiary roads. We have not received, so far as we  
5       know, any word about what the coalition intends to do  
6       with respect to NOTO's terms and conditions.

7                   During this hearing the argument about  
8       what should be done with tertiary roads was very much  
9       an issue of NOTO in the early years of the hearing. We  
10      asked at the end of their case, the coalition's case  
11      what was going on with the terms and conditions we had  
12      received early on from NOTO. We have heard nothing.

13                  Do we assume that NOTO has agreed to the  
14      tertiary road term and condition, I forgot what number  
15      it is, or is that a coalition agreement or where does  
16      that stand? It is Illing agreed term and condition.

17                  MR. KENNEDY: I was going to point that  
18      out, Madam Chair. I was referring to MNR term and  
19      condition No. 44 and you are correct in recalling that  
20      it is a term and condition that was supported in the  
21      Illing Report.

22                  From that I believe it is correct to say  
23      that you can conclude that the OFAH/NOTO coalition have  
24      supported that specific term and condition. I might  
25      add that we have made numerous inquiries as to the



1 status of the coalition's more recent terms and  
2 conditions and we have not receive them to date.

3 MADAM CHAIR: We did receive a letter and  
4 I think it was sent to all the parties a week or two  
5 ago to the effect that the coalition is without  
6 resources to participate in the hearing and they don't  
7 know if they can submit revised terms and conditions or  
8 even participate in argument.

9 But the question the Board has put to  
10 them during their case was whether the NOTO terms and  
11 conditions still had any importance or should the Board  
12 even be looking at them and we never heard back. So  
13 that's another problem for Mr. Beram.

14 MR. MARTEL: I want to come back to Mr.  
15 Kennedy. Should there be a clearer indication, though?

16 We are left with an iffy situation on  
17 this. While some small developers or some small  
18 cutters are good and we have a list of those and from  
19 my experience that has been a problem of long-term  
20 standing of where one goes to cut if they have got a  
21 small licence. What do they call them, a \$2,000  
22 licence they used to pay. It doesn't come to a lot of  
23 harvest out there, but it sure creates a lot of  
24 problems in making sure they are right in the right  
25 place.

1                   For the Board, is MNR going to take upon  
2           itself to do those type of markings and that's boundary  
3           and that's not an AOC?

4                   Your answer while indicating that most of  
5           the major companies can do it, the bigger ones, and  
6           some of the smaller ones are good at it still leaves  
7           some concern as to when, at what stage or what reason  
8           will MNR do it itself and that's not clear yet to me.  
9           It is pretty iffy without some clarification on what  
10          criteria MNR would do it itself. I didn't make it any  
11          easier.

12                   MR. KENNEDY: Mr. Martel, I think I am a  
13          bit rusty in this area, but I can explain to you from  
14          my experience what has occurred in the past and I  
15          believe that's still to be the situation.

16                   I would say that the district cutting  
17          licences or DCLs, which is the smaller licence that you  
18          were just referring to, it has been the practice in the  
19          past for MNR to do the boundary marking on that type of  
20          licence.

21                   I would ask others to speak if they have  
22          any experience in that regard as well.

23                   MR. MARTEL: I think the question then,  
24          Mr. Kennedy, is it MNR's intention to continue that  
25          practice or are they going to try and shift aware from

1 there?

2 MR. KENNEDY: I am not aware of any  
3 program specifically that we have in place to move away  
4 from that practice. I can advise that as you move into  
5 other forms of licences, into order-in-council licences  
6 which may be in place for anywhere from one to five  
7 years, usually the licensee is an individual who has  
8 considerable experience in the work force and he has a  
9 much larger operation than the district cutting  
10 licensees which often one and two-person operations.

11 It is in the order-in-council licences,  
12 the larger ones, where we do look to the licensee in  
13 many situations to either accept the responsibility for  
14 marking the boundary or to do it in conjunction with  
15 MNR or to do it and to have it verified in spot checks  
16 along the boundary. That is my experience and I am not  
17 aware of any move to unilaterally eliminate that  
18 practice. Others may wish to add to that.

19 MR. CASSIDY: Mr. Martel, I just might  
20 make a note here of caution that one should not  
21 necessarily assume that the larger companies want to do  
22 that marking in all circumstances.

23 As Mr. Kennedy I think noted, that is a  
24 matter of what I might call rather frank discussion  
25 between the individual companies and the individual



1 districts as to how that's going to be dealt with. So  
2 I just want to make that clear that that's not an  
3 automatic and if Mr. Kennedy has any comment on that he  
4 is free to add to that.

5 MR. KENNEDY: Madam Chair, I think I  
6 should add because it hasn't been said specifically,  
7 part of the concern that is raised by the Industry is  
8 the observation that much of the marking involved area  
9 of concern prescriptions is dealing with the protection  
10 of other values and it often raises the question who  
11 should pay for the management of those other values.

12 Simply put, the question comes down, it  
13 is fair and proper to ask the Industry to accept full  
14 responsibility for the costs in marking boundaries  
15 associated with those values.

16 MR. FREIDIN: Madam Chair, I think we are  
17 both looking at the cloak. From my perspective I think  
18 this would be a good time for a break. Mr. Gordon was  
19 going to move to a new slide which will take some time.

20 MADAM CHAIR: Okay. We will be back in  
21 20 minutess.

22 ---On recessing at 10:05 a.m.

23 ---On resuming at 10:25 a.m.

24 MR. GORDON: I am now going to move on to  
25 overhead No. 6.

1                   If the Board was to accept this package  
2 of proposals by FFT, then MNR would be obligated to  
3 deliver those and provide some interpretations to the  
4 field on what is required of them and when we look at  
5 the wording of the proposals we find it sometimes  
6 unclear as to what FFT is proposing or wanting done or  
7 what the limits are within their proposal and what can  
8 or cannot be done.

9                   I am just going to give you some  
10 examples. If you look at their term and condition  
11 28(1)(h) it is unclear to us what you do in stands  
12 where you cannot regenerate them naturally and if you  
13 were to carry out a net present value calculation and  
14 it was negative and, therefore, based on what they are  
15 proposing you weren't allowed to carry out artificial  
16 regeneration, what would you do in such situations?  
17 Would you not cut the stand? I don't know what you  
18 would do.

19                   We note specifically in FFT 29(c) that  
20 tree planting is permitted in the jack pine working  
21 group if previous prescriptions had failed.

22                   What if by carrying out such work, and  
23 you also carry out a net present value calculation the  
24 net present value is negative, are you still allowed to  
25 carry out tree planting?

1                   Based on their evidence in the hearing  
2     room it is still unclear to us as to why you must  
3     attempt natural regeneration on sites where you have  
4     got a history of natural regeneration not working and  
5     yet they are recommending that you rapidly regenerate  
6     areas in their T and C I believe 34.

7                   We also note that because of the simple  
8     guidelines or rules that they are putting forward, that  
9     in actual fact it creates a lot of questions. What  
10    happens when you have got a jack pine stand beside a  
11    poplar stand? What size of clearcut is allowed?

12                  If you have got a 40 hectare jack pine  
13    stand and a one hundred hectare poplar stand beside  
14    that jack pine stand, which rule do you follow, the 50  
15    hectare rule for the poplar stand or the one hectare  
16    rule for the jack pine stand?

17                  As we know, because of the clearcut  
18    exercise, what appears to be a very simple question  
19    often is very difficult to answer and while they put  
20    for simple rules for clearcut size, what do they mean  
21    by the size of the clearcut.

22                  If I recall some of the evidence of Panel  
23    5 where the chair asked Mr. Benson about what happens  
24    as you move through the rotation across the management  
25    unit over a 50-year period, I was led to believe that



1 that whole area would be the clearcut and yet we know  
2 there will be forests coming back in many of those  
3 areas -- in all of those areas except where there are  
4 roads.

5 In simple terms, while they may have some  
6 laudable objectives and they may even have some  
7 objectives that we would agree with, we feel that it is  
8 simply inappropriate because of the variable conditions  
9 across the area of the undertaking, because of  
10 different management objectives for the Board to  
11 consider adopting and we are recommending that they do  
12 not accept the simple rules FFT is putting forward.

13 MR. ARMSON: Madam Chair, I wonder if I  
14 might be permitted an interjection here.

15 MADAM CHAIR: Go ahead.

16 MR. ARMSON: I have been through the  
17 silvicultural guidelines of FFT and it strikes me that  
18 there is a fundamental flaw, and in listening to Mr.  
19 Gordon here I am confirmed that the problem is a  
20 fundamental one and that we can deal with some of the  
21 details, as Mr. Gordon has done.

22 Guidelines, silvicultural guidelines in  
23 particular, are there to reflect both the research and  
24 knowledge and probably equally, if not more important,  
25 the experience of forestry staff in undertaking

1 silvicultural practices and undertaking them in an  
2 effective manner and in an environmentally sound  
3 manner. That was the purpose of guidelines that were  
4 developed by the Ministry.

5 They were developed primarily for use at  
6 the management unit level by management foresters where  
7 they were intended to be adapted and interpreted, and  
8 here is where the flaw in the FFT comes, to meet the  
9 objectives and conditions at that level.

10 When a guideline usurps the function of  
11 an objective, then it is no longer a guideline. It has  
12 taken itself into an area where it shouldn't be. I  
13 mean, you set objectives in relation to your purposes  
14 and your conditions and the forest and so on and within  
15 that context you apply guidelines. In other words, the  
16 cart is almost before the horse here and it seems to me  
17 that's the problem.

18 If you in fact -- and, Madam Chair, you  
19 really touched on this when you asked the question  
20 earlier you asked about the size of clearcuts, the 50  
21 hectares and the hundred hectares, how do you apply  
22 that if there is an objective in what has been called a  
23 landscape sense to deal with the management of the  
24 poplar or the jack pine in an area, and that seems to  
25 be the fundamental problem with these guidelines, they

1 have taken on the fuction of setting objectives and I  
2 think that is quite improper for them.

3 MADAM CHAIR: It seems to us, Mr. Armson,  
4 and you might want to comment on this for our on  
5 clarification. It seems to us that Forests For  
6 Tomorrow, as any intervenor at the hearing, has been  
7 obliged to be in the position of saying at the end of  
8 the day what do we want out of the forest and so we  
9 mustn't get too caught up in whether they mix up ideas,  
10 and that's certainly a problem for MNR.

11 I am not saying that's not a problem, but  
12 standing back from it, an intervention in a hearing  
13 this size is very difficult and Forests For Tomorrow  
14 has said pretty clearly, as far as the Board is  
15 concerned, that they are looking at a type of forest  
16 that will give a sustained yield of non-timber  
17 resources as well as wood supply.

18 Mr. Lindgren might jump up and tell me I  
19 am all wet, but when we look at their terms and  
20 conditions and we look at their evidence and their  
21 entire case and we stand back and say what is it in its  
22 simplest essence, they would like to see more natural  
23 regeneration, they would like to see smaller clearcuts,  
24 whatever we call it, an objective or a silvicultural  
25 guideline, and it may be very misapplied with respect



1 to implementing it the field in the way it is written,  
2 they are saying we want forests to serve purposes other  
3 than just wood supply or we want more equal attention  
4 being given to trees for non-timber use.

5 I think that's what they are saying in  
6 one respect to us. For the outsiders, for those of us  
7 who are not foresters, the guidelines look like  
8 powerful tools, they look like the things you use to  
9 change the shape of forests.

10 So although it may be misplaced with  
11 respect to outsiders knowing what the right names are  
12 and what you can use, I think the intervenors have  
13 rightfully focused on how do you make changes in the  
14 way forests are managed.

15 MR. ARMSON: If I might respond, Madam  
16 Chair.

17 I believe that anything that I have said  
18 is strengthened by the sense that other values, in fact  
19 other non-timber values -- I long believed that there  
20 should be management and it is where perhaps wildlife  
21 management is the prime objective and where maybe  
22 timber production is a secondary thing.

23 It still doesn't destroy my point that in  
24 fact the guidelines, silvicultural guidelines, reflect  
25 the best experience and knowledge whether it be for

1 timber production, as most of them do now because  
2 that's where the knowledge and experience has been  
3 gained, and I would look forward -- in fact, I would  
4 almost prophesy that within the next decade, whatever  
5 guidelines are developed, will contain silvicultural  
6 guidelines related to wildlife and other values  
7 including perhaps landscape visual management. We  
8 already have examples of that taking place in other  
9 jurisdictions.

10 So the idea that that is unacceptable,  
11 those other values are unacceptable in the sense of  
12 just silvicultural guidelines I don't agree with.

13 I accept your explanation that this  
14 focuses attention on it. Where I have a problem is  
15 when a condition is laid down and mandated which  
16 invokes these kinds of words and I know how they can be  
17 applied, then that is where the flaw comes into play  
18 and where I could see some major problems in terms of  
19 setting objectives at the local level by local  
20 citizens' committees, for example. They are going to  
21 run right head along into some of these things if they  
22 were rules.

23 That's my real concern. The idea of  
24 focusing attention I think is great and I believe that  
25 we should then move in an acceptable way and understand

1        what where the responsibility and accountability is for  
2        setting the objectives and where the silvicultural  
3        guidelines for whatever purposes come into play.

4                    MR. MARTEL: Can I just shift that just  
5        for a second because one of the things that's worried  
6        me, and maybe it is the length of time this whole  
7        process has taken, right from the start of the whole  
8        idea of a timber hearing which started out as a forest  
9        management, now timber management, and that it has gone  
10       on for so long and I looked at the evidence as various  
11       parties presented it and I am not sure whether we are  
12       dealing with the conditions today that exist out there  
13       or we are dealing with the conditions that existed 10  
14       years ago.

15                   I have worried about this a great deal in  
16       the last couple of years because of the amount of  
17       material that's been presented that was pre-1980 as  
18       documents to support one's claim.

19                   I understand the difficulty having some  
20       experience with limited resources over many years of  
21       trying to compete with what a government agency that's  
22       well heeled can present as opposed to -- and I am just  
23       wondering if that's a problem because too many of  
24       the -- I shouldn't say too many, lots of the documents  
25       that I looked at predated your report, Mr. Armson, and



1 almost a focus on what was there before.

2 One of the reasons we wanted so many site  
3 visits is to get out there and look and it is not a  
4 criticism of the various parties because the difficulty  
5 for them was to have the material, the staff capability  
6 to compete in a very competitive setting and I just  
7 keep going back to looking at the documents that many  
8 of the parties used to support their position.

9 I am not sure they were in the same  
10 position as MNR or even the Industry who at the end of  
11 course was also financially strapped, as we know.

12 I am wondering if that's the problem here  
13 that we continue to have. Based on what they saw in  
14 the past they don't want to go back to that day and the  
15 concern that: Well, maybe things are going along well  
16 as long as this hearing proceeds, but the day this  
17 hearing stops do we move backwards or do we stop the  
18 progress which the momentum seems to be carrying us  
19 forward, but at the same time that concern of -- not so  
20 much maybe even what's happening in Ontario, but what's  
21 happening in other jurisdictions where they haven't got  
22 this sort of process in place.

23 Maybe that's a long rambling position I  
24 am putting to you, Mr. Armson, but is that one of the  
25 difficulties that we see these types of Ts and Cs and

1       why we can't get agreements?

2                   MR. ARMSON: Well, if the Board may  
3       recall Panel 2, going back four years, to May of 1988,  
4       there I presented, if you like, a synoptic or historic  
5       account of how forestry developed or various activities  
6       related to forestry developed, logging and so on.

7                   I think I would agree with you, Mr.  
8       Martel, that in fact we are evolving and we are  
9       evolving very rapidly and the problem that we have is  
10      one that was exemplified by a slide of Mr. Greenwood's,  
11      the rearview mirror effect, that in fact many people  
12      and the public generally see or are -- there is  
13      portrayed a set of conditions which, yes, they may  
14      exist here and there, but by and large in Ontario we  
15      have moved away from.

16                  The whole business -- the whole issue of  
17      clearcutting I think is one that is a classic case of  
18      where we are moving and moving very rapidly way from  
19      things that in many of the public's views are  
20      unacceptable, but the public don't see them - I mean,  
21      the public generally - nor are they written about  
22      necessarily the way they are now.

23                  I mean, the kinds of things that are  
24      portrayed are, let's face it, often the exceptions or  
25      what are generally occurring in other jurisdictions

1 that are considered bad. I mean, one only has to pick  
2 up an eastern newspaper to see a picture of a clearcut  
3 on the mountainside in B.C., that kind thing.

4 So that rearview mirror I think is  
5 correct.

6 The problem then is how do we make people  
7 aware. Throughout this hearing the Board certainly has  
8 been made very much aware and has seen what goes on in  
9 this province and it is very important. I think you  
10 have hit on a very crucial matter; how are the public  
11 to be better informed and I think that is a key issue.  
12 It has been addressed in various ways by different  
13 parties, but I think fundamentally that's an issue that  
14 the forestry community generally has to deal with and I  
15 don't think it is dealing with, whether it be  
16 government or industry very successfully right now.

17 MR. MARTEL: Their cynicism if you live  
18 in northern Ontario and you hear about it, their  
19 cynicism - it might not be right - but their cynicism  
20 and the fear that I hear constantly is we might go back  
21 to that.

22 How you overcome that to ensure that you  
23 don't I guess is part of the education of the folks  
24 that it won't happen again, but I think that that's  
25 what has led maybe to some of the Ts and Cs which I



1 would question because I simply don't know how they tie  
2 if, but where you get the sense that people -- what  
3 they want.

4 Maybe that's why I have had such  
5 difficulty with not seeing an agreement reached or more  
6 agreement reached because those differences are still  
7 pretty significant when we have spent as much time as  
8 we have trying to encourage agreement and one wonders.

9 That's why I asked Mr. Greenwood this  
10 morning the sort of question I asked him this morning,  
11 these new concepts, if there is consensus why don't you  
12 reach agreement on them, and yet we are not talking  
13 that far apart in many instances when we are seeing  
14 Forests For tomorrow with its landscape management and  
15 MNR moving towards it, the Ontario Federation of  
16 Anglers & Hunters, their concept on the type of  
17 adaptive management approach and we are moving towards  
18 it.

19 One wonders whether the differences are  
20 as great as they might appear or is it a time frame  
21 that we are talking about that prevent us from getting  
22 more consensus?

23 I am not sure we are talking that far at  
24 loggerheads although there are some significant issues,  
25 you know, roads being one of them of course, that might

1 prevent it, but still all in all one would think that  
2 if everybody is moving towards these new concepts one  
3 might get some agreement.

4 MR. GORDON: I had the opportunity to  
5 participate in a number of workshops relative to the  
6 other wildlife project and that's where a lot of the  
7 discussion on landscape management began to come to a  
8 head and there were representatives from across the  
9 province and out of the province and I can say  
10 categorically that relative to the general direction  
11 that we should be going relative to landscape  
12 management there was almost unanimous agreement around  
13 the table in those discussions.

14 Where the challenge will be is it is  
15 translating the general principles or directions that  
16 people can agree on into what should be delivered on  
17 the ground. I guess one of the things that I am trying  
18 to say to you is while we support moving in a landscape  
19 direction, if we adopt these proposals we ain't going  
20 there. There is a contradiction and so, therefore, we  
21 have to deal with that. The only way we can deal with  
22 that is through discussion, increasing our knowledge  
23 base and moving forward.

24 I might say that included in the review  
25 of the silvicultural guidelines were a number of

1 biologists, some of them who attended those workshops  
2 and who agreed themselves with the direction and they  
3 were some of the most vocal people to raise concerns  
4 about some of the specific proposals that FFT has  
5 included in this package, yet they and I and FFT  
6 probably would fundamentally agree at a higher level as  
7 to the direction we should be going, but we have got to  
8 make sure that we have the tools to get there.

9 I am going to move on to overhead No. 7  
10 and perhaps I will go through it relatively quickly.  
11 FFT puts forward condition No. 29, the silvicultural  
12 guidelines, and in actual fact we view them as somewhat  
13 rigid standards in that when you look at their term and  
14 condition 32 you can only go contrary to what is laid  
15 out in condition 29 by using three of their exception  
16 criteria.

17 One of them is that where a regional  
18 ecologist determines that it is necessary to have large  
19 areas of a similar age class, then you can go contrary  
20 to the direction in 29.

21 I would question why members of the  
22 planning team working together couldn't figure that out  
23 and I would wonder why a biologist would not be more  
24 appropriate where different prescriptions are necessary  
25 to achieve non-timber objectives.



1                   It probably will come up in  
2 cross-examination and this is where it becomes quite  
3 confusing for MNR and for myself, is you can go  
4 contrary to the direction in 29 if it doesn't meet --  
5 if by carrying out what is required in 29 it doesn't  
6 meet the general intent of conditions 27 and 28.

7                   So the way I read that, the way MNR reads  
8 that is we can depart from the silvicultural guidelines  
9 that are outlined in condition 29 if MNR believes that  
10 we are not meeting the intent of 27 and 28. We are  
11 just not sure what FFT is trying to tell us here.

12                   I think the fundamental problem is that  
13 we are dealing with such a large area, variable site  
14 conditions, a variety of management objectives and to  
15 address the concerns that they have they have put  
16 forward some very simple, straightforward rules to deal  
17 with very complex situations and because of that if the  
18 Board ordered this package of proposals we believe to  
19 meet wood supply objectives, to meet landscape  
20 objectives as we develop them over time, that  
21 exceptions would become the rule.

22                   Moving on to overhead No. 8, and I draw  
23 the Board back momentarily to Exhibit 2265, I don't  
24 think you need to refer to it, but that was some  
25 information provided by Ron Waito and, more

1 importantly, Brian Callaghan where he had done some  
2 modelling at a provincial level on the potential impact  
3 of FFT's prescriptions on forest composition.

4 There is no question in MNR's mind and  
5 the majority of practising foresters across the area of  
6 the undertaking that there will be a dramatic increase  
7 in the hardwood component of our forests if we follow  
8 the package that FFT has put forward and within the  
9 remaining conifer component there will a relative  
10 increase in balsam fir.

11 That's just the way the sites work and  
12 the way the silvics of the species say it will work. I  
13 draw you back to some evidence that was presented in  
14 Panel 10 where I believe Mr. Hynard went through a  
15 detailed table and discussed some of the specific  
16 silvics of the species that we have to deal with within  
17 the area of the undertaking and that was in Panel 10,  
18 page 120, Table 1.

19 We believe if we are ordered to follow  
20 the intent of FFT's proposals that we would negatively  
21 impact on the long-term conifer and economic wood  
22 supply for the forest industry, and as well we would  
23 not be able to go where I think we all want to go  
24 relative to landscape management and biodiversity  
25 maintenance.

1                   On overhead No. 9, we understand that FFT  
2           wants MNR to give greater consideration to landscape  
3           management and biodiversity as noted in condition 27(1)  
4           and 53 by trying to, within our capabilities, maintain  
5           a natural mosaic of stand types as noted in condition  
6           54.

7                   However, we believe that their proposal  
8           will result in a mosaic of small strips and clearcuts  
9           and a dramatic shift in forest composition and,  
10          therefore, we believe that there is a direct  
11          contradiction than what they are putting forward in  
12          this package of Ts and Cs versus where they would like  
13          to see MNR go relative to landscape management and  
14          biodiversity.

15                   I believe MNR Reply Panel No. 3 has tried  
16          to give the Board some indication as to what  
17          initiatives we are undertaking to move us in the  
18          direction of landscape management.

19                   Moving on to the last overhead, a simple  
20          summary of MNR's very serious concerns about this total  
21          package and that is those six Ts and Cs that I have  
22          referenced. We believe in some many cases FFT's  
23          proposal lacks foundation based on accepted  
24          silvicultural science and Ontario experience.

25                   We believe that their proposals are



1 simple and too restrictive to the many site conditions  
2 and management objectives that we must deal with across  
3 the area of the undertaking and, therefore, will  
4 require an extreme number of exemptions.

5 We have tried to outline to the Board in  
6 this presentation that there are some significant  
7 operational locations associated with their proposals.

8 As presently worded, MNR believes it will  
9 be difficult for us to interpret and know that we are  
10 living up to the intent of such proposals if ordered.

11 Based on our experience relative to the  
12 sites within the area of the undertaking and the  
13 silvics of the species, the hardwood component within  
14 Ontario's forests will increase and there will be a  
15 relative increase in balsam fir and we believe that we  
16 will have an unnatural mosaic of stands.

17 We honestly believe that this does  
18 contradict their objectives relative to landscape  
19 management and biodiversity.

20 MNR is actively pursuing improvemetns to  
21 its silvicultural programs through sustainable forestry  
22 initiatives and we believe that the package that we  
23 have put forward to the Board is sound.

24 When I talk about the package, I am  
25 talking about the silvicultural decision-making package

1 which includes our silvicultural guides which will  
2 change over time as better information comes available,  
3 the environmental guideline that we have talked about,  
4 the need for the appropriateness of professional  
5 judgment, the role that the provincial technical  
6 committee will play in the future that we propose in  
7 our Ts and Cs, and as well in Panel 3 the R and D  
8 initiatives that we talked about both relative to  
9 silviculture and development of landscape management  
10 tools and technologies.

11 MR. FREIDIN: Madam Chair, I think that  
12 completes the discussion of FFT's silvicultural  
13 standards.

14 Unless you have any further questions for  
15 Mr. Gordon or the panel I would like to move on to the  
16 issue of site productivity which will be dealt with by  
17 Professor Armson and Mr. Greenwood.

18 There being no questions, Madam Chair, I  
19 would then ask that the next exhibit be a series of  
20 overheads entitled Site Productivity, seven pages in  
21 length which are the overheads which will be used by  
22 Professor Armson.

23 Perhaps at the same time we could give a  
24 separate exhibit number to the overheads which will be  
25 used by Mr. Greenwood entitled Long-Term Forest

1 Productivity Study, Cull and Full Tree Harvest and that  
2 particular exhibit is 19 pages in length.

3 MADAM CHAIR: The overheads to be used by  
4 Mr. Armson will be Exhibit 2304 and the overheads to be  
5 used by Mr. Greenwood will be Exhibit 2305.

6 ---EXHIBIT NO. 2304: Series of overheads entitled Site  
7 Productivity.

8 ---EXHIBIT NO. 2305: Series of overheads entitled  
9 Long-Term Forest Productivity  
Study, Cull and Full Tree  
Harvest.

10 MR. ARMSON: Madam Chair, just a comment  
11 at the beginning concerning today. If you discount the  
12 title page on my presentation by the overheads it is  
13 going to be six pages, the one you heard from -- the  
14 one you had from Mr. Greenwood this morning was 20 and  
15 Mr. Gordon 10. It seems to me we are on a curve here  
16 of a 50 per cent reduction each time the witness  
17 appears which may account - I figured it out - why Mr.  
18 Abraham has no lead evidence.

19 Before I begin with the overheads, just a  
20 comment. What I have done on pages 21 to I guess it is  
21 30 in the reply evidence that you have, from those  
22 pages I selected a number of items or issues which I  
23 have put on overheads and I would like to speak to  
24 those overheads as they relate to these particular  
25 topics. I think they are the key ones. So if we could



1 have the first slide, please.

2 The first issue is, what is site  
3 productivity. It has been a term that has been used  
4 throughout the hearing and I think we have to refresh  
5 our memories as to what do we really mean by it.

6 In the context in which it has been used  
7 in this hearing it refers to the volume of wood,  
8 usually in cubic metres, per hectare at some specified  
9 age and then the yield curves that Mr. Greenwood spoke  
10 to addressed that kind of thing.

11 So if we accept that definition we have  
12 to then understand what is the progression of yield  
13 through time in a general sense on a given hectare and  
14 I have portrayed this graphically showing increasing  
15 yield with time.

16 You will notice that the curve -- and  
17 there are two points I would like to make about this  
18 curve. One is what we would call a sigmoid one; in  
19 other words, it is more or less S shaped and instead of  
20 peaking in a sharp point it normally flattens, and then  
21 reference has been made to fall off in volume and  
22 reduction in volume in overmature stands and that is  
23 indicated by the dotted lines at the end of the curve,  
24 but there are two parts of that curve I want to  
25 emphasize.

1                   The first one is what we call a point of  
2           inflection. In the early growth of a stand or a tree  
3           the growth rate continues to increase and then at some  
4           point it starts to decrease. It happens with human  
5           beings, it happens with all multi-cellular organisms.

6                   That point of inflection is the point at  
7           which the maximum rate, and I emphasize rate, of growth  
8           and the rate of all the activities are going on. That  
9           occurs relatively early in (a) the life of a tree, but  
10          even in terms of a stand, a forest of trees it occurs  
11          even earlier. It is in the quite early years, the  
12          first two to three decades.

13                   The second point I would like to make --  
14          and this is relevant to my discussion about nutrients.  
15          The second point I would like to make is that the  
16          maximum yield is not a single point normally. It is a  
17          flat area. There is a period of years at which the  
18          yield from year to year may vary somewhat, but  
19          basically it is flat.

20                   In some stands and under some conditions,  
21          and the Board has been presented with evidence of  
22          differences in yield curves, for example upon what we  
23          consider the more fertile, better sites, the curve  
24          moves to the left, it is taller and tends to achieve  
25          more of a peak than on the poorer sites where it often

1 tends to flatten.

2 In fact, in a sense, a bonsai tree is a  
3 classic example of a growth rate that never does get  
4 off the ground. So if you wanted even growth I think a  
5 bonsai tree would come about the closest to it that I  
6 can think of.

7 So that kind of sense pictorials the  
8 visual sense of, first of all, the progression of yeild  
9 through time and the time is measured usually in years,  
10 then we can go to some attributes, if you like, related  
11 to yield that we can relate to that curve. So if we  
12 could go to the second slide, please.

13 What I have outlined here are the  
14 features of a yield curve and the first feature, the  
15 first thing we have to understand is that there is no  
16 unique natural yield curve for species on sites, for  
17 all species on all sites. In other words, there is  
18 no -- if we are looking for a benchmark there is  
19 nothing that we can say is sort of there is an  
20 immutable benchmark, that's it.

21 The reason for this is that growth is  
22 controlled by a whole host of factors which are  
23 generally summarized, and the Board heard much about  
24 that in my evidence in Panel 9.

25 The aspects of climate and climate not



1       only through the year, but over the years and over the  
2       decades and over in fact the centuries, if not  
3       thousands of years; species, species requirements,  
4       species change; the stage of development at rotation.

5               Obviously one of the key aspects, soil  
6       conditions, soil property and these are not fixed in  
7       time. We think often think of soils and their  
8       properties as relatively stable and in relation to  
9       climate they certainly are, but they are not stable.  
10      There are changes going on and, again, the Board has  
11      heard about those.

12             All those factors, both singly and in  
13      combination, and it is often in the interactions of  
14      those factors, temperature, moisture, species, and not  
15      only the tree species but the other species that occur  
16      on the same hectare with the trees species whose yield  
17      we are concerned about, they are equally important in  
18      the stage of development.

19             Again, this is an important feature  
20      because of the -- as you saw in that curve the rate of  
21      growth isn't constant. It is changing over time.

22             To make it even more complex, as the  
23      Board I think understands, that complexity of factors  
24      is then impacted by natural phenomena and the Board has  
25      seen some examples of that in terms of insect

1 infestations, disease which is perhaps less obvious,  
2 fire, wind and floods and all those disturbances come  
3 into play on the landscape, on the forest and will have  
4 an impact both directly in one sense that it can  
5 destroy the existing stand or in terms of influencing  
6 by other factors, the soil properties and so on as fire  
7 does and do insects and disease indirectly, then there  
8 is human manipulation and I won't go into that, but the  
9 degree of management regimes.

10 For example, if there is a decision, a  
11 proper decision to change the age at which a species is  
12 harvested, but if you were harvesting old growth  
13 stands, natural stands that are 120 years it may be in  
14 fact a quite rationale decision to reduce that rotation  
15 age to 80 years.

16 The best example I think that the Board  
17 has heard of this is with black spruce on what are  
18 described in the yield curves as site 1 or site 1A, the  
19 very best sites, that in fact if you leave the  
20 harvesting normally to 100 or 120 years you in fact  
21 lose much of that volume. You would have a stand  
22 that's already breaking up.

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24 which the maximum rate, and I emphasize rate, of growth  
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11 very best sites, that in fact if you leave the  
12 harvesting normally to 100 or 120 years you in fact  
13 lose much of that volume. You would have a stand  
14 that's already breaking up.

15 So in terms of yield those are decisions  
16 that would come into play in any management.

17 As a result of this, again I come back to  
18 the proposition that to characterize productivity of a  
19 stand or a species in a given location by any one  
20 single measure, any one single measure is both  
21 unreliable and inappropriate. It is totally  
22 unrealistic. It actually just is a flat denial of the  
23 reality of what we know about growth and the factors  
24 that affect it.

25 So for this reason when we talk about



1 maintenance of site productivity in the long-run which  
2 is -- I am not suggesting that isn't a worthwhile  
3 overall objective, but we recognize that in endeavoring  
4 to do that we have to take into account the realities  
5 of what goes on in there and the real world outside.

6 We also have to recognize that there are  
7 many "natural stands" and I think any field forester  
8 could attest to this, where in the experience of the  
9 forester in that particular area he will find stands or  
10 stands of a species in a situation where they seem to  
11 be an anomaly in terms of growth.

12 Often they seem to be growing more poorly  
13 than what he associates or she associates with their  
14 experience on similar kinds of conditions and always  
15 raises the question, why, and in many instances, in my  
16 own experience, there is a simple explanation, a  
17 historical explanation in terms of what went on.

18 The best example I can give you and it is  
19 one I believe I recounted to you in some of my previous  
20 evidence is where there was a natural fire,  
21 establishment of jack pine and then a second fire came  
22 through within the first 10 to 15 years and that  
23 reduced, thinned out the stand and killed many trees,  
24 but it also created other conditions which in many  
25 instances in reduced yield, most probably reduced

1 fertility and the stand is not growing as well. That  
2 kind of thing does happen. It may not be common, but  
3 it is still something that we have to recognize.

4 So what I am coming to is looking for a  
5 single absolute benchmark in yield is unrealistic.  
6 What we can do is use the benchmark of an existing  
7 natural forest that we are bringing under management  
8 and say as our first approximation let's use that as  
9 our level of yield that we will endeavor to maintain in  
10 the long-run.

11 So I would like to turn now, unless the  
12 Board has any questions about productivity per se and  
13 the benchmark, I would like to turn now to an aspect  
14 that the Board heard a great deal about in relation to  
15 maintaining long-term productivity and that was the  
16 area particularly as it related to nutrient supply as  
17 it would be affected by methods of harvesting and in  
18 particular full-tree harvesting and full-tree chipping.

19 MOE, both in their terms and conditions  
20 and certainly in the evidence and statements that were  
21 presented, raised the question as to, if you have only  
22 limited information - and this was dealing with the  
23 effects of harvesting, full-tree harvesting in  
24 particular - if one has only sort of pieces of  
25 information or data about the possible consequences of

1 that type of harvesting on nutrient supply, then, as  
2 was stated by Mr. Neary, and I have put the quotation  
3 up by Mr. Neary from Volume 372 and it is on page 64659  
4 of the transcript, if I might quote that, he said:

5 "There is uncertainty as to the nature of  
6 this effect..." Speaking of the effect  
7 of full tree harvesting,

8 "...and the MOE suggests that we should  
9 proceed with caution in this type of  
10 area if the consequences..." and he was  
11 relating this to certain kinds of site conditions,

12 "...if the consequences of getting it  
13 wrong are significant. We think that the  
14 consequences of jeopardizing the next  
15 rotation or rotations thereafter from  
16 being fully productive are significant  
17 enough that caution in this area is  
18 warranted."

19 That was end of his quotation from his  
20 statement.

21 I would put to the Board that where there  
22 is incomplete evidence, and that is certainly the case,  
23 one would look for pieces of evidence, first of all,  
24 that were direct. I mean, it may not be direct here  
25 but it could be direct somewhere else.



1                   So the question I pose is: Is there any  
2 direct evidence of reduced productivity certainly that  
3 would be applicable to the area of the undertaking and  
4 there is no evidence of any comparison of yield after  
5 today's harvest with a yield one rotation later. I  
6 mean, that's not an unreasonably thing. I mean, one  
7 wouldn't expect to find that direct evidence.

8                   Then you say: Well, if -- and, again, I  
9 refer to Mr. Greenwood. The focus of attention we  
10 don't want -- maybe some of you around the table might  
11 be here, but I certainly won't be here for the next  
12 rotation with the current rotation ages that exist.

13                   We often want and scientists want to get  
14 information in the shorter term. Mr. Greenwood  
15 referred to this, speaking of that. So we say: Is  
16 there any indication of reduction of growth in an  
17 earlier period following harvest.

18                   In other words, have we had harvesting  
19 that either was done by full-tree harvesting,  
20 recognizing that's a relatively recent innovation, but  
21 is there any area where harvesting has been relatively  
22 complete where we have evidence of reduced early  
23 growth, and I come back now to that first slide of the  
24 yield curve.

25                   If there is going to be a reduction in

1 growth biologically we would expect the reduction, if  
2 it was due to nutrient supply, to come early in the  
3 life of the stand not at the end because, in fact, the  
4 rates of growth and the rates - and I underline rates -  
5 of nutrient uptake and need are highest in the early  
6 stages.

7 The highest rate of nutrient uptake in a  
8 white spruce is when it is one year old not when it is  
9 80 years old. The total amount is obviously quite  
10 different, but the rate is highest.

11 So we would say -- and, in fact, again  
12 from my own experience not only here but in North  
13 America and in Europe, when we find examples of  
14 nutrient deficiency we find them in young stands not in  
15 the old stands. I am speaking now of conifers in  
16 particular.

17 The examples of my own experience and  
18 studies in Ontario, one area in fact which lies within  
19 the area of the undertaking just outside of Huntsville  
20 had nothing to do with whole-tree harvesting. These  
21 were farm land conditions which I will refer to again  
22 was, again, a potassium deficiency in red pine, but in  
23 the young plantation.

24 So the point I am making is, is there any  
25 direct evidence of reduced growth in earlier periods of

1 development in the area of the undertaking following  
2 harvest and we haven't heard any evidence.

3 I will admit that on landings, I mean the  
4 bush where they are bulldozed down to the bare mineral  
5 soil we will find it, but that I am excepting because  
6 of their very specific condition and it is not really a  
7 general occurrence.

8 MADAM CHAIR: Excuse me, Mr. Armson.

9 MR. ARMSON: Yes.

10 MADAM CHAIR: Could you remind the Board  
11 of what we discussed as being the starting point for  
12 full-tree harvesting?

13 MR. ARMSON: I can't give you the exact  
14 date. Perhaps either Mr. Greenwood or Mr. Kennedy can.

15 In my own recollection full-tree  
16 harvesting in any significant way - it has been going  
17 on for decades actually - but in any significant way I  
18 think is certainly within the last decade and probably  
19 within the last five to seven years or eight years  
20 generally.

21 MADAM CHAIR: So what you are telling us  
22 is that the kind of evidence we would need to look at  
23 would be trees that would be -- or regenerating stands  
24 that would be maybe 10 to 15 years old?

25 MR. ARMSON: That's correct and that's



1 where I would look.

2 MADAM CHAIR: What you have said is that  
3 you have had experience in looking at stands throughout  
4 the area of the undertaking, and as you recall early in  
5 the hearing one area that was discussed at some length  
6 was the Dryden area where there had been sizable  
7 clearcuts in the mid 70s and we had evidence by Mr.  
8 Cary who had been involved in that and subsequently had  
9 revisited the area and had his opinions on its  
10 regeneration.

11 Are those the kinds of areas that you  
12 would see as being useful to look at with respect to  
13 comparisons in nutrient deficiency with full-tree  
14 harvesting?

15 MR. ARMSON: Yes, although they weren't  
16 full-tree harvested. They were conditions in terms of  
17 soil, very shallow soils over bedrock.

18 I might say to the Board, I visited that  
19 area in 1974 actually when Mr. Cary was the unit  
20 forester and I also have revisited the area over time.  
21 I think the last time I did it in any intensity was in  
22 1988 just prior to the hearing commencing.

23 So those would be areas where I would say  
24 if you were -- without tying it to full-tree  
25 harvesting, but in many people's minds it may be

1 representative of extreme conditions in terms of soil  
2 and nutrient supply.

3 To my knowledge and from my observation  
4 it is not an area of nutrient deficiency or where the  
5 rate of growth of the young stands well established  
6 which suggest that productivity has been lowered.

7 Related to the growth is the feature I  
8 have referred to again and that is this foliage  
9 discoloration which to people who are experienced in  
10 that area, the different kinds of discoloration  
11 indicate deficiencies in the supply of nutrients,  
12 different patterns of what we call chlorosis or  
13 yellowing indicative of nitrogen deficiency or  
14 potassium deficiency and so on.

15 These are well authenticated in the  
16 literature, in forest literature. My own work in  
17 dealing with seedlings and young plantations had much  
18 to do with that.

19 So in summary there has been no direct  
20 evidence of reduced productivity in relation to  
21 full-tree harvesting or chipping or conditions that  
22 might be considered to approximate it.

23 The second area, instead of direct  
24 evidence, and I have really touched on this to some  
25 degree, and that is, is there any inferred evidence and

1 here is where perhaps the nub of much of the difference  
2 of opinion may lie.

3 We contend that the inferred evidence  
4 does not suggest reduced productivity and, therefore,  
5 does not support MOE's term condition and condition  
6 21(c) which would restrict that form of harvesting on  
7 specific areas.

8 Much of that inferred evidence, and the  
9 Board heard a great deal of it from any number of  
10 studies, some scientific and some reviews of papers, in  
11 which estimates, I underline the word estimates, were  
12 made of the amount of nutrients, primarily nitrogen,  
13 phosphorous, potassium, calcium and magnesium, the  
14 amount of nutrients that either were or were calculated  
15 or estimated to have been taken off an area in relation  
16 to -- by full-tree harvesting or chipping in relation  
17 to the calculated estimated amounts of nutrients that  
18 were left on the area, either on the surface in the  
19 form of organic material or within the soil,  
20 particularly the mineral matter.

21 I might remind the Board that in that,  
22 and again I go back to my evidence presented to the  
23 Board in Panel 9, that from a scientific standpoint,  
24 independent of harvesting or anything like that, if one  
25 is looking at nutrients within the system, then



1 scientifically you look at it in terms of inputs, the  
2 input that come from the atmosphere, the inputs that  
3 come into the soil from outside via drainage water and  
4 so on, one looks at the components in that system in  
5 two basic ways.

6 In terms of the components, the amount of  
7 nitrogen if you want to use an example, that exist in  
8 any component of that system and we talk about that as  
9 the pools, the pool of nitrogen that is in the stand or  
10 in the lesser vegetation or in the forest floor and  
11 these can be determined by appropriate procedures and  
12 estimates obtained. We are very cognizant of the  
13 movement of nutrients in whatever different forms from  
14 one of these pools to another.

15 For example, the simplest example is that  
16 there is potassium in the foliage of a tree leaf and  
17 when the rain strikes that leaf in fact we know that  
18 the rain will take out some of that potassium and it  
19 falls through in the water into the soil.

20 There are those movements of nutrients  
21 going on and they are not static in the sense of kind  
22 of steady flows. They are flows that change, they  
23 change with the conditions, they change because of the  
24 biological, microbiological factors and so those  
25 changes we refer to as flux, the pools and the flux.

1                   If you like think of it as a complicated  
2 plumbing system in which you have got various  
3 reservoirs and in which the amount of water that can  
4 flow from any one to the other is subject to a whole  
5 series of complex rules and regulation. Sometimes they  
6 flow rapidly, sometimes they don't flow and which can  
7 change. That is in a sense the nutrient dynamics of a  
8 stand.

9                   The problem we then have is if you go to  
10 a stand at one instant in time and try to determine on  
11 a nutrient balance whether removing so much from  
12 whatever pool - in this case we are talking about  
13 taking the trees out - it will have an impact.

14                  You are left with a whole series of big  
15 question marks because you are doing it (a) at one  
16 instant in time and in fact in virtually all the  
17 evidence from the scientific papers that were presented  
18 and certainly the ones that were relied by MOE there  
19 was a very large question mark, an extremely large  
20 question mark about whether their assessment of (a) the  
21 pool size was even relevant in the soil.

22                  In other words, we sample soil to  
23 determine how much nitrogen and phosphorous. We do it  
24 arbitrarily. The sampling procedure is one which is  
25 not simple, not simple in terms of the methodology but

1 how you get the samples that reflect accurately or  
2 within some degree of accuracy what that pool size is.  
3 The limits of air are in the order of a hundred or more  
4 per cent.

5 So that one says from inferred evidence  
6 of snapshot sampling or estimates, which there is  
7 nothing wrong with doing it, but taking that and then  
8 trying to get a bottom line we are suggesting that that  
9 is an unreliable measure to use to say you shall or  
10 shall non use this particular method on a specific  
11 site.

12 The second piece of inferred evidence,  
13 which again I referred to in my evidence in Panel 9,  
14 was that independent of harvesting as such we have  
15 clear evidence, very dramatic evidence in areas  
16 primarily in southern Ontario, but also in central  
17 Ontario, and I refer to the Thessalon area in  
18 particular between here and Sault Ste. Marie, where  
19 pine forests were cleared, the areas were burned to get  
20 rid of the debris, the areas were then cultivated for  
21 many decades in some instances to the point where there  
22 was no organic material, they were abandoned because  
23 you couldn't get even get a reasonable agricultural  
24 crop, normally this would be wheat or rye or something  
25 like that, the grass didn't even come back on it and



1 these were abundantly documented in the early part of  
2 this century by Mr. Zavitz in a document, The  
3 Wastelands of Ontario, which led to historically the  
4 planting, the first major planting of trees in this  
5 province in the (inaudible) sands of Simcoe County, of  
6 Norfolk County, part of Prescott and Russell of  
7 Thessalon in the Kirkwood Forest, not all of it but  
8 part of it.

9           These areas which we know were infertile,  
10 they had been reduced by man to about the extreme in  
11 infertility and they were planted with, in most cases,  
12 red pine and white pine, in some cases there was some  
13 spruce, but by and large, and we have there are some of  
14 the finest growing stands of pine and what ages, up  
15 to -- well, the first plantations began in 1922, '23.  
16 So we now have stands that are -- you might say  
17 virtually 70 years of age and we asked the question:  
18 Has there been any evidence going to that? Does that  
19 seem to reflect, you know, the effect of low nutrient  
20 supply on productivity of those species, and the answer  
21 is really no.

22           So that evidence, again inferential,  
23 would suggest that maybe in terms of uncertainty we  
24 have got in fact a piece of evidence out there that  
25 strengthens the certainly that, yes, we have to be

1 concerned, but let's be realistic in this concern.

2 Finally, the other piece of inferred  
3 evidence, again evidence which I referred to in a  
4 previous panel, Panel 9, and the Board has seen the  
5 areas where we have had severe natural fire.

6 One of the effects of fire, of course, is  
7 to reduce the amount of the pool size of nutrients.  
8 Much of the nutrients go off in the air and land  
9 somewhere else, on somebody else's property. There is  
10 an ash left which gives an immediate increase in  
11 fertility, short-term fertility. We know about that  
12 one, but in fact the large amount of the pool size is  
13 dramatically reduced, far more dramatically than  
14 anything that would happen with full-tree harvesting.  
15 We say, from those areas do we have convincing evidence  
16 that the tree growth will be limited.

17 I referred earlier in my statement to  
18 second fires coming and reducing it. We do have  
19 reduced -- but by and large we say: No, we don't have  
20 that.

21 So in summing up that and putting it in  
22 the context of Mr. Neary's uncertainty, I would put  
23 before the Board that from the lack of direct evidence,  
24 which is not unreasonable, that we don't have direct  
25 evidence, but particularly from the inferred evidence

1 that his level of uncertainty and the term jeopardy is  
2 really being -- it is not a question of caution. I  
3 think it is being unrealistic about what we might  
4 anticipate from such harvesting.

5 MADAM CHAIR: Mr. Armson, the Board had  
6 raised -- we questioned Mr. Neary when we heard this  
7 evidence.

8 As part of the evidence we also received  
9 information and I believe Mr. Neary's response to our  
10 question was that if delimbing or chipping were done in  
11 the bush as opposed to at the roadside, then probably  
12 there wouldn't be as large a concern or maybe not a  
13 concern.

14 The Board heard that and then said,  
15 that's not an operational matter that does not seem  
16 insurmountable to achieve and then the question that  
17 rose in our minds was why would the province -- if  
18 there were a practical solution to this, let's say  
19 there is some -- even if there is a basis to Mr.  
20 Neary's concern and you required an operational way  
21 that foliage and so forth be left in the bush, then why  
22 wouldn't we do that and, secondly, why would we devote  
23 considerable resources to a long-term study of this  
24 situation when maybe the money would be better spent in  
25 other areas?



1                   MR. ARMSON: Let me make it clear, the  
2 basis of my response to the Board is not to argue that  
3 there shall be full-tree harvesting or chipping  
4 everywhere. It is the question of looking at that  
5 particular issue and saying is there any evidence that  
6 supports it.

7                   To come to your point about the matter of  
8 leaving delimbing on the ground, again I would say that  
9 falls within the context of the professional forester's  
10 judgment in that area in terms of the management  
11 objectives that are set for that area whether in fact  
12 the method of harvest should be one involving full-tree  
13 harvest or chipping or whether it should involve some  
14 form of delimbing or whatever it might be.

15                  It is quite conceivable to me that if you  
16 wanted to -- given, for example, in the situation of  
17 jack pine, if you wanted to make use of the cones that  
18 were available in the existing stand, then hauling them  
19 off to the side of road and getting rid of them there  
20 isn't normally the way to do it if you wanted to use  
21 those in terms of natural regeneration, as indicated by  
22 Mr. Gordon.

23                  That's a judgment, a decision call that I  
24 think should come at the field by the forester there,  
25 not by edict set provincially in relation to evidence

1 that doesn't exist.

2 MR. MARTEL: Can you help us then - I  
3 will say me - as to what is in fact occurring then in  
4 terms of -- because we have seen the amount has  
5 increased very significantly I guess in the past five  
6 years. The figures we got, it really bounced from a  
7 small amount to, what, 60 or 70 per cent or even  
8 higher.

9 So while I hear what you are telling me,  
10 Mr. Armson, that these things have to be taken into  
11 consideration, if we in fact had moved from 10 per cent  
12 to 70 per cent, how can we say then that these other  
13 factors are being taken into consideration leaving the  
14 tops in jack pine in particular?

15 Is that occurring when one realizes how  
16 much -- where we move from 10 or 15 per cent to 70 per  
17 cent in a five-year period - and I am just using  
18 numbers, I don't have precise number at my fingertips  
19 now - but if we move that dramatically in five years or  
20 six or seven years, what in fact is occurring to the  
21 things you are suggesting should occur by the  
22 individual forester who is out there saying: Oh, this  
23 is jack pine and we need to keep the tops here if we  
24 want the stuff to grow on its own with as much natural  
25 regeneration as possible?

1                   Is there a danger that is not occurring  
2 when we see that significant increase?

3                   MR. ARMSON: Directly yes, there is  
4 always a danger, but if I may answer your question this  
5 way and I offer you an analogy, but I think it is a  
6 very relevant one.

7                   In the early 1960s, late 50s and early  
8 1960s when the Ministry undertook by a legislative  
9 amendment to assume responsibility for the regeneration  
10 of Crown forest lands, whether they were under licence  
11 or whatever, there was a great deal of professional  
12 forestry and technical development going on in terms of  
13 how to regenerate.

14                   One of the areas of focus was site  
15 preparation and I can vividly recollect, and I am quite  
16 sure, although I would not ask the Ministry to  
17 undertake to find this out, that the records would show  
18 that the barrel, the steel barrel and chain or pads and  
19 chain with steel barrels were used probably on -- in  
20 the 60s they developed from maybe 5 per cent of the  
21 area that was site prepared to something like -- I  
22 think I would not be far off in saying 70 or 80 per  
23 cent. The record would show if one wanted to look.

24                   I think anyone who has been around would  
25 say everybody was using barrels and chains because they



1 were kind of the 'in' thing but they were the only  
2 thing. There was nothing much else. They were also  
3 developed here in Ontario.

4 What happened was that they were used  
5 improperly. They were used on all kind of situations.  
6 I can visual evidence of it. It wouldn't work. I  
7 mean, they were trying and they didn't work. They did  
8 all kinds of damage, not serious but...

9 So what happened was that they said we  
10 need some other kind of device and particularly the  
11 Scandinavians got here and said these people can buy  
12 some of our equipment. So what we have now is a whole  
13 array of site preparation equipment which the Board has  
14 heard a great deal about.

15 The same kind of development is now going  
16 on in the field of harvesting. We have gone through  
17 cycles since the early 1950s when it was cut and skid  
18 with a horse, we have gone through cycles where the  
19 industry, because it was only concerned with the  
20 economic extraction of wood, tended to move as - Madam  
21 Chair, if you will forgive me - like ladies' fashions.  
22 It tended to move in blocks. Everybody was using this  
23 and everybody was using that and they were in many  
24 cases inappropriate and misapplied.

25 What we now see happening, and you have

1 again heard evidence, that in terms of harvesting there  
2 has been now an increasing development of different  
3 kinds of ways of harvesting.

4 You must have heard about - I'm sorry I  
5 wasn't here, about single grip tree harvesters that  
6 take the whole bulb but strip the limbs and you have  
7 heard about a development from Mr. Roll not too long  
8 about the way Canadian Pacific Forest Products were  
9 looking at this whole business of full-tree harvesting  
10 and how they could modify that in terms of leaving  
11 material on the site for whatever purpose.

12 So what I would suggest to you, Mr.  
13 Martel, is that -- and, again, is the evolution and the  
14 rate at which the Industry is now saying we have to  
15 have harvesting which is integrated into the longer  
16 term view and integrated so that we can use the  
17 appropriate tools to carry out harvesting and then the  
18 subsequent activities of renewal.

19 I think one of the single most cogent  
20 arguments for having the Industry involved in  
21 management back in 1975 and '76 in my report was the  
22 fact that unless you integrated harvesting into the  
23 forest management picture you were going to always have  
24 these situations in which you were using a tool that  
25 may be was the most efficient or effective for your

1 purpose in harvesting, but really didn't create a  
2 condition that was suitable for regeneration and the  
3 question of the Ministry having to attempt to  
4 regenerate areas that were littered with debris when  
5 they could have been harvested in a different way and  
6 minimize that. I am talking here about artificial  
7 regeneration.

8 So my answer to you is that, yes, there  
9 is always a danger, but we are going through a very  
10 rapid transition stage and I think there is clear  
11 evidence of that and what we ought to be doing is,  
12 therefore, encouraging it, not in fact stifling it by  
13 rules that are based on fear, it was always a concern,  
14 but on fear or based on the rearview mirror effect of  
15 what has gone on in the past.

16 MADAM CHAIR: A last question, Mr.  
17 Armson. Are you telling the Board that you have no  
18 concerns with respect to full-tree logging or chipping  
19 on nutrient levels?

20 If your answer to that is no, not really,  
21 why is MNR proposing to go ahead with a long-term study  
22 on that topic?

23 MR. ARMSON: My answer isn't a  
24 categorical no. Of course I have a concern.  
25 Scientifically I would like to have some direct



1 evidence and that leads to the answer to the second  
2 part of the question.

3 Unless we do get some bona fide direct  
4 results, and they won't come easily nor will they come  
5 in an absolute way, but unless we get some of that  
6 information and the process for getting it --  
7 incidentally, I believe in doing that, and this was a  
8 point made by Mr. Greenwood, because there is a link  
9 between the growth and the yield and the studies which  
10 he is going to describe to you.

11 Unless we have that data and information  
12 we will probably -- people will 10 years or 20 years  
13 from now will be asking questions in relation to some  
14 other nature type of harvesting and I thinks this is a  
15 way to get some benchmarks, not absolutes but some  
16 benchmark data and, therefore, I would say yes, I have  
17 concern, but that doesn't invalidate the need to have  
18 some proper studies initiated.

19 MR. GREENWOOD: If I could, Madam Chair,  
20 I was going to answer that question in my lead in to  
21 the second part which is a description of the study.

22 Mr. Armson has recognized that the  
23 incomplete evidence with regard to this subject and we  
24 have in previous occasions discussed the debate in the  
25 research community and research reports concerning the

1 relevance of estimated nutrient changes.

2 So the question facing the Ministry is  
3 what do we right now, and Mr. Armson has described that  
4 you examine any direct evidence that there is and any  
5 inferential evidence to try and determine the risk  
6 associated with not doing something right now or doing  
7 something right now and the conclusion after that  
8 examination is that the risk is low enough that the  
9 answer would be to leave those decisions to the field  
10 foresters who are examining the site relationships and  
11 the harvest practices on those sites.

12 As well, we are committing to provide  
13 those people with the best information we have and  
14 expertise with regard to those practices and I will be  
15 describing those later.

16 So that's in terms of what do we do right  
17 now. That doesn't alleviate the question, though, and  
18 that's the reason for the study. Therefore, you also  
19 try and complete the evidence with respect to these  
20 effects.

21 MR. ARMSON: I would like now to turn to  
22 the next overhead and, again, this is dealing with  
23 MOE's concern and the basis for their concern.

24 Specifically here I would like to comment  
25 on three aspects of that concern and this really formed

1 the basis I think of the evidence they presented.

2 The study by Timmer, Savinski and Marek  
3 in 1983, I commented on again in back in Panel 9 I  
4 believe for the Board. I have already described the  
5 problems in using data from studies where the balance  
6 sheet, if you like, raises large questions.

7 In relation to the Timmer, Savinski and  
8 Marek study I would like to draw to the Board's  
9 attention a statement from a document that was placed  
10 in evidence, and I can give you the exhibit number. It  
11 was exhibit No. 424 4 and it was a paper from the  
12 Canadian Journal of Soil Science titled Nutrient  
13 Cycling and Availability in Forest Soils and it was  
14 authored by four rather prominent forest scientists,  
15 particularly in the areas of soils, Dr. Mahandrappa;  
16 Dr. Foster, Neil Foster of the Forestry Canada Ontario  
17 region who is one of the scientists involved in the  
18 study that is proposed by the Ministry; Dr. Gordon  
19 Whietman from the University of British Columbia who  
20 has had a great deal of experience both in eastern  
21 Canada and in western Canada in terms of forest soils  
22 and nutrients; and Dr. Helmut Krouse who is the  
23 professor of forest soils at the University of New  
24 Brunswick.

25 The particular item from that exhibit is



1 actually taken from the final paragraph and that is in  
2 the reply evidence on page 24 and this is in their  
3 summary and conclusions and it is actually the third  
4 paragraph down on that page.

5 This relates very directly. These are  
6 four of the most -- with the exception of Dr. Morrison  
7 who wasn't involved in that, I would say these four and  
8 Dr. Morrison are the most eminent forest soils  
9 scientists not only in Canada, but on an international  
10 basis. If I might read that quotation, they say in  
11 their summary and conclusions:

12 "It is obvious that the  
13 representativeness of point estimates..."  
14 That is point sampling at any instance,  
15 "...of plant available nutrients  
16 determined with the conventional  
17 methods..." and those were the methods  
18 used by Timmer, Savinski and Marek,

19 "the conventional methods is limited.  
20 Extreme caution should, therefore, be  
21 exercised in using such estimates for  
22 inferring their ecological significance  
23 and for modelling endeavors."

24 That refers to the projection forward.

25 I would suggest to the Board that that is

1 where the word caution has been most properly used.  
2 Caution with respect to taking some data about which  
3 they have said watch out, it may or may not be relevant  
4 to inferring what may happen ecologically or in terms  
5 of making projections forward one or more rotation.

6 That in particular I think is very  
7 pertinent to a consideration of MOE's concern. That's  
8 the caution I think that is relevant.

9 The second document was again an exhibit,  
10 and I'm sorry I don't have the exhibit number on my  
11 copy. I can give you the reference. It was a document  
12 that was put in evidence I believe in panel -- it  
13 wasn't it my evidence in Panel 9 so I think it may have  
14 been...

15 MR. FREIDIN: Which document?

16 MR. ARMSON: Maliondo.

17 MR. FREIDIN: Exhibit 1408.

18 MR. ARMSON: Exhibit 1408.

19 I am going to make some statements about  
20 this particular exhibit. It was titled Possible  
21 Effects of Intensive Harvesting on Continuous  
22 Productivity of Forest Lands and it was a document that  
23 was cited by Dr. Hutchinson in his evidence before the  
24 Board on behalf of Forests for Tomorrow and it was also  
25 a document referred to in the presentation by MOE.

1                   The document is a review document, but  
2           the essence of a review, a scientific review is that  
3           the author of the review is knowledgeable and  
4           experienced in the scientific area in which he is  
5           undertaking the review.

6                   Secondly, in looking at a review of that  
7           type one would look at the review to see whether it was  
8           of a quality in terms of what it stated and the way it  
9           stated it and whether in fact the papers which it was  
10          reviewing, whether the comments in here accurately  
11          portrayed what was in the original paper or papers.

12                   Secondly, in the scientific review one  
13          looks for a critique. In other words, if all you are  
14          going to do is collect in one area the names and titles  
15          of papers and taken right from their own papers what  
16          they stated, one has got nothing more than a catalogue.

17                   That's not an uncommon exercise for  
18          graduate students when their professors ask them to do  
19          this because it is a form of getting some work done,  
20          cheap labour done and making them all so familiar with  
21          the literature, but a scientific review goes beyond  
22          that.

23                   It says let's look at these papers, let's  
24          look at the ones done by this research scientist and  
25          that one and so on and do we find that there are



1 conflicting conclusions about a particular area. Is  
2 the data that they have purported to base their  
3 conclusions on, does that really support their  
4 conclusion.

5 In other words, it is much more than a  
6 compendium of who did what and what they found out  
7 because often there is a difference. What's the  
8 significance of this and what can we draw from it.

9 I would put to the Board that the  
10 Maliondo review does not demonstrate those qualities of  
11 a scientific review. It is in fact a compendium with,  
12 in many instances, statements drawn and conclusions  
13 that when one looks at the original paper one can't  
14 find that.

15 In fact, there are errors. I will cite  
16 one on page 3 of the review. If you go to the pages,  
17 the text is in two columns, if you go to the right-hand  
18 column in the last paragraph, about the middle of the  
19 paragraph they refer to a paper by Nichrist and Rosen -  
20 and the Board heard considerable evidence about this  
21 paper from Dr. Hutchinson - and the statement in  
22 Maliondo's review is that Nichrist and Rosen show that  
23 the soil base saturation was reduced by 80 per cent on  
24 sites.

25 Now, as a soil scientist anyone that said

1 that as a result of -- in this case it was a question  
2 of logging and slash, that base saturation were reduced  
3 80 per cent. The order of magnitude is such as to  
4 cause anyone who is knowledgeable in the area to say,  
5 whoops, what happened here. This is something funny  
6 going on.

7 Now, I happen to track that back in the  
8 Nichrist and Rosen paper which was done by -- it has an  
9 exhibit number. I don't know it, Mr. Freidin.

10 MR. FREIDIN: 1408A, Tab 23 if you have  
11 got tabs.

12 MR. ARMSON: In that paper, in the  
13 abstract there is a sentence that says:

14 "There is a decrease in base saturation  
15 of about 80 per cent."

16 So Maliondo obviously in terms of the  
17 abstract -- however - and this is where I come to the  
18 point about a critical review - if you go to page -- in  
19 this case this was an article published in the journal  
20 of Forest Ecology and Management.

21 If you go to the actual data in the  
22 article which is on page 166 of the Nichrist and Rosen  
23 exhibit you will see that the table it is a minus 8.2  
24 per cent and then in the text on page 167 they refer to  
25 that table, it says:

1 "When slash was left the base saturation  
2 was about 8 per cent higher than when it  
3 was removed."

4 Now, obviously there is a typo in the  
5 Journal of Forest Ecology and Management and there is  
6 also a typo in the person who typed the manuscript that  
7 got it into the abstract.

8 One could fault the authors for not  
9 reviewing the abstract. I would suggest to you  
10 sometimes authors regard the abstract as kind of a  
11 throw away thing, but that error is perpetuated here  
12 and it was then perpetuated in a witness statement to  
13 the Board.

14 Therefore, I am saying to you if you are  
15 going to base evidence on review documents of that  
16 quality - and there are many other attributes, I have  
17 gone through this paper that would deny it as being of  
18 any scientific value as a review document - then I  
19 would say that evidence is highly questionable.

20 So in that sense MOE relying on that I  
21 don't think has -- it is certainly not as Mr. Neary  
22 said, the best available information.

23 Finally, in terms of -- does the Board  
24 have any questions concerning the Maliondo review  
25 paper?



1 MADAM CHAIR: No.

2 MR. ARMSON: In terms of the final  
3 slide --

4 MR. FREIDIN: Before you go there, Mr.  
5 Armson, I just have a couple of questions for you  
6 arising out of the evidence of Mr. Neary.

7 Q. If one wanted to refer to page 65263  
8 of the transcript, I believe that's Volume 376, in my  
9 cross-examination I suggested to Mr. Neary that the  
10 Ministry of the Environment had disregarded the  
11 recommendations by the authors of the Timmer, Savinski  
12 and Marek paper about applying the results of that  
13 paper to species or conditions outside the area of the  
14 study.

15 When I asked Mr. Neary whether that was a  
16 reasonable application of the report Mr. Neary  
17 responded at page 65264 commencing at line 14, and I  
18 quote:

19 "The witnesses for the Ministry of  
20 Natural Resources and OFIA relied upon  
21 studies, some of which were done on  
22 nutrient rich sites with very deep  
23 soils and concluded that there wasn't a  
24 nutrient limitation and assumed that for  
25 the area of the undertaking you could

1                   proceed with no restriction."

2                   Do you agree, Mr. Armson, that the  
3   Ministry of Natural Resources extrapolated the results  
4   of studies across the area of the undertaking in a  
5   fashion similar to the manner in which MOE have dealt  
6   with the Timmer, Savinski and Marek paper?

7                   MR. ARMSON: A. No, we certainly did  
8   not.

9                   Q. Can you elaborate any further on  
10   that?

11                  A. We relied on papers, scientific  
12   papers to give us some sense and to give us a  
13   background, but then we also had to rely on our own  
14   knowledge and experience, and I referred to some of  
15   that already, in terms of the area of the undertaking.

16                  So we are not extrapolating. What we are  
17   using is our best available knowledge and our own  
18   experience and knowledge of the area of the  
19   undertaking. That certainly isn't extrapolation.

20                  Q. In volume 244, this is not Mr. Neary,  
21   this is Dr. Hutchinson, at page 43850 I was asking some  
22   questions of Dr. Hutchinson and we were talking  
23   about -- I asked him:

24                  "If you want to make inferences or  
25   conclusions at the forest level..." in

1 relation to sort of nutrient depletion  
2 issues,

3 "...would you agree that you would have  
4 to have an understanding of the  
5 components of the system, the various  
6 levels of organization up to the forest  
7 level?"

8 Dr. Hutchinson said:

9 "If you wanted an understanding of the  
10 forest you have to have an understanding  
11 of the systems."

12 I then asked him:

13 "Do you also agree that it would be  
14 important to have observations over time  
15 of the forest as a whole?"

16 He said:

17 "It would depend entirely on the question  
18 you are asking."

19 Now, in relation to the subject matter  
20 that we are discussing right now, and that is potential  
21 reduction in site productivity because of its effect on  
22 nutrients as a result of full-tree harvesting, do you  
23 have any view as to whether having observation of the  
24 forest as a whole over time is important?

25 A. Yes. As I have already indicated to



1 the Board, that is absolutely crucial.

2 First of all, using that curve, the yield  
3 curve and indicating that that yield, the rates of  
4 growth, the rates of demand change over time, but the  
5 observations of a forest and forest conditions over  
6 time which are quite conceivable, and I have given you  
7 my own observations and evidence related to those  
8 observations, is I think far more critical in making a  
9 decision than what I would call a snapshot study that  
10 may be made at any one place, limited, and which  
11 bears -- and it may be a perfectly sound study. I am  
12 not judging it, but which only presents certain pieces  
13 of information about which there are serious questions,  
14 as I have indicated to the Board, as to whether if you  
15 add them up mathematically are you really going to get  
16 an answer that is significant.

17 I would suggest to the Board that  
18 experience and knowledge drawn from wherever but  
19 applied to the area of concern is far more important  
20 than perhaps any other single factor.

21 Q. In terms of observations of the  
22 forest as a whole over time in relation to this site  
23 productivity issue, for how long have you been observed  
24 in making those kinds of observations, Mr. Armson?

25 A. Since 1948 in terms of the area of

1 the undertaking. At that time I was a student, but I  
2 must say I had considerable experience in cruising  
3 areas of forest fire in the area of Manitouage and the  
4 Black River watershed generally.

5 Q. Mr. Armson, do you have any  
6 information that Dr. Hutchinson has been observed in  
7 similar types of observations?

8 A. From my personal knowledge, when Dr.  
9 Hutchinson was a member of the University of Toronto  
10 and so on, the answer is no. He has some experience in  
11 the Sudbury area in relation to heavy metal occurrence  
12 related to the fall-out from the smelter, but I don't  
13 know of any extensive and certainly not over a long  
14 period of time.

15 Q. Thank you. Could you continue then  
16 with your next slide. It is twelve o'clock.

17 MADAM CHAIR: Shall we break for lunch  
18 now, Dr. Armson. Your last point is on a separate  
19 matter?

20 MR. ARMSON: Yes, it is, although I  
21 think, Madam Chair, it is one that I don't -- my  
22 presentation will be very short. Whether the questions  
23 are prolonged...

24 MR. FREIDIN: Mr. Armson, I have a series  
25 of questions which are going to follow that in relation

1 to this topic before Mr. Greenwood takes over, so I  
2 would suggest we do break for lunch.

3 MADAM CHAIR: We will be back at 1:30.

4 ---Luncheon recess at 12:00 p.m.

5 ---On resuming at 1:30 p.m.

6 MADAM CHAIR: Mr. Freidin, which days do  
7 you need next week for Panel 4? Are we supposed to be  
8 here on Monday or Tuesday and Wednesday?

9 MR. FREIDIN: Tuesday and Wednesday. We  
10 were only going to come back on Monday if we had to for  
11 this panel, but Mr. Cassidy has terrible conflict on  
12 Monday and I wouldn't want to...

13 I don't think we are going to have any  
14 problem finishing this panel this week and it was  
15 planned Tuesday and Wednesday for Panel 4.

16 MR. ARMSON: Madam Chair, if we might  
17 proceed to the last slide. In this last slide what I  
18 am dealing with is the use of a single measure of depth  
19 of soil as a way of reducing risk or measure of the  
20 risk of reduced site productivity and this specifically  
21 refers to the MOE terms and conditions No. 21(c) where  
22 the restriction of harvesting, full-tree harvesting or  
23 chipping is predicated upon a single measure related to  
24 the shallowness, in this case, a single measure.

25 My contention would be that, first of



1 all, recognizing that site productivity reflects the  
2 interaction of many factors, that when you use that  
3 single measure you are again, and this may sound  
4 repetitious, you are sort of dismissing all that  
5 understanding, knowledge out the window and you are  
6 applying a single linear measure without going into the  
7 details of how you would apply it - that's another  
8 problem, I am not dealing with that - but to say that  
9 that in itself is a measure which will ensure that in  
10 one case or in this case you are ensuring full  
11 productivity whereas if you didn't have it you would  
12 not have that productivity maintained.

13 The implications of using that single  
14 measure, a rule of that type in effect just stops. In  
15 my opinion, has a major influence on the development of  
16 new ways of dealing with conditions, with concepts and  
17 I have already indicated that the use of single grip  
18 harvesters coming in as a developmental stage, the  
19 evidence of Mr. Roll again of where the Industry in  
20 terms of equipment is looking at different ways of  
21 harvesting.

22 If you put a blanket rule you tend to  
23 just put a cap on that kind of innovativeness or  
24 incentive for innovation.

25 It also deters, I would suggest, the

1       inquiring into these areas. You asked about why  
2       proceed with a study on long-term site productivity if  
3       in fact there was an easier way of putting the cap and  
4       saying: Well, to the best of our knowledge we will  
5       have a single rule and that will apply everywhere and  
6       we can all kind of feel that somehow we have ensured  
7       there will be full site productivity and that really to  
8       me is neither a professional nor a scientific approach  
9       to the matter, nor in quite simple terms is it a common  
10      sense approach in the way the world operates and the  
11      way, in fact, we advance and innovate.

12               Also in doing that we are really denying  
13      the very things that I think are important; that is  
14      existing knowledge, healthy debate, vigorous concern  
15      for the weight that we should give data and experience  
16      and observation and judgment.

17               As I have indicated to you, the reliance  
18      on mere numbers in publications and the inferences that  
19      are drawn from those, important as they are, I don't  
20      think in any count they can be set up as the way in  
21      which you determine whether you do or whether you don't  
22      do something.

23               It seems to me that here the weight of  
24      professional experience and observation in the area of  
25      which we are speaking, the area of the undertaking, or

1 any forest area is important.

2 With that, that is the last slide, Madam  
3 Chair, if there are any questions on that one.

4 I do have one other comment to make. I  
5 didn't prepare a slide for it, but it dealt with the  
6 issue of physical degradation on pages 27 through to  
7 page 30. This was largely relate to evidence presented  
8 by the coalition through Dr. Carr concerning the  
9 physical effects and, more particularly, really not so  
10 much the effects, but the methodology by which you  
11 would determine in any area some degree of sensitivity  
12 to those effects.

13 In the written reply statement you will  
14 find in terms of climate, clearing and soils we have no  
15 quarrel in a sense with the methodology, but it was  
16 developed in relation to different climatic conditions,  
17 to a certain degree different forest conditions.

18 Many of the areas of the forest were not  
19 similar -- certainly the species are totally dissimilar  
20 or largely dissimilar to those we have, the topography  
21 and the major impact that slope has in terms of erosion  
22 which was one of the key areas, compaction was the  
23 other, just no comparison.

24 I think Mr. Martel noted that at the time  
25 of the presentation of the evidence and then, thirdly,



1 the soils which are -- yes, there are some soils that  
2 are similar, but by and large the soils are quite  
3 different. The soils that are similar are relatively  
4 limited in occurrence in this part of the province and  
5 always in conjunction with very, very gentle to no  
6 slope.

7 So in terms of the physical degradation,  
8 the Board has not heard any evidence of that. The  
9 Board has seen types of equipment used and conditions  
10 and the use of prescriptions which minimize that and  
11 the Board has also heard that it is an area which  
12 foresters on the ground are constantly aware of and in  
13 fact we believe that it doesn't warrant a provincial  
14 scale exercise in attempting to determine areas  
15 sensitive to such physical degradation.

16 MR. FREIDIN: Q. Mr. Armson, I have a  
17 couple of questions for you. One arises out of a  
18 document marked Exhibit 2206 and for ease of reference  
19 I brought copies of that particular exhibit. I am not  
20 sure whether I included that on my list of documents  
21 which should be brought to the hearing by other  
22 parties.

23 Do you have a copy of that, Mr. Armson.

24 MR. ARMSON: A. Yes.

25 Q. Mr. Bisschop, do you have a copy as

1 well.

2 MR. BISSCHOP: A. (nodding affirmatively)

3 Q. The reason I provided you a copy with  
4 that, Mr. Armson, Mr. Bisschop, is that it was referred  
5 to and entered by Mr. Neary in relation to the Ministry  
6 of the Environment propose term and condition 21(c),  
7 the one you just referred to, Mr. Armson, which relies  
8 on soil depth as the basis of imposing restrictions.

9 Mr. Neary indicates that the term and  
10 condition is not, and I quote, "particularly onerous"  
11 because in this particular exhibit there is a statement  
12 in relation to open clearcutting and I can just refer  
13 you to the place that he was referring.

14 If you look at the bottom of page 32 of  
15 that exhibit, in relation to open clearcuts he says:

16 "Open clearcuts are often the result  
17 of progressive cutting of several even  
18 aged stands over a wide area."

19 It goes on in, two sentences along:

20 "Clearcutting of this nature requires  
21 that the site be environmentally stable;  
22 i.e., soils are generally more than 30  
23 centimeters deep."

24 And then after referring to that  
25 statement he basically says that it wasn't particularly

1 onerous because it was already in the draft  
2 environmental assessment.

3 I wanted to ask you whether you could  
4 comment on the reasonableness of relying on that  
5 particular passage in support of MOE term and condition  
6 21(c).

7 MR. ARMSON: A. Well, briefly the answer  
8 is no and the reason is that this particular --

9 Q. The answer is no what?

10 A. I do not agree that it is a linkage  
11 to take that statement and then link it up to a  
12 condition suggesting that any soil less than 30  
13 centimetres deep is unstable.

14 The reason for -- first of all, the  
15 context is an important point. This is out of a  
16 document which is the draft Class EA. This is a draft  
17 and I think that's an important fact.

18 Q. Do you know as to why it was taken  
19 out of the draft?

20 A. Yes.

21 Q. Why was it taken out, do you know?

22 A. It was taken out because it was  
23 unreasonable. It led to perhaps someone without  
24 understanding the context taking it and using it  
25 exactly what Mr. Neary suggested should be done with



1 it.

2 Q. Now, Mr. Bisschop, the document had a  
3 title page stuck on the front Excerpt From The Draft  
4 Class EA, December 1985.

5 December '85 was the date on which the  
6 environmental assessment was submitted to the Minister  
7 of the Environment. The particular pages which are  
8 attached, 32 and 33, do they come from a document which  
9 predated December '85?

10 MR. BISSCHOP: A. I believe Exhibit No.  
11 2206 correctly identifies the December 1985 version of  
12 the document. That part of the Class EA document was  
13 written -- I can't recall which foresters were actually  
14 involved in it, but it was written by MNR foresters.

15 If you would turn to page 39 of the  
16 amended Class EA, June 1987, page 39, there is a  
17 section in italics, it is at pages 17 to 20, that shows  
18 that there was a change made and I am not knowledgeable  
19 about the reasons for the change, but there was an  
20 amendment made to the document at that time.

21 Q. Mr. Armson, commencing at page --  
22 pardon me, referring to 21(c) and commencing at page  
23 64679 of the transcript the Chair asked whether MOE had  
24 looked at what the restrictions being proposed would do  
25 with respect to the economics of harvesting.

1                   Mr. Neary indicated that MOE had asked  
2                   through interrogatories and cross-examination of the  
3                   Ministry of Natural Resources the extent of the shallow  
4                   and very shallow areas and that they had not been able  
5                   to get a response and that as a result they did not  
6                   know the answer to the question.

7                   When Mr. Martel asked whether MNR doesn't  
8                   have it or won't provide it - those were your words Mr.  
9                   Martel - Mr. Neary responded:

10                   "I suspect they don't have it, but  
11                   perhaps MNR can answer that better than I  
12                   can."

13                   I want to give you an opportunity on  
14                   behalf of MNR to answer that better than he could.

15                   MR. ARMSON: A. Well, the Ministry does  
16                   not know the extent, for example, if you are using that  
17                   simple linear measure we do not know the extent of  
18                   soils less than 30 centimeters in depth, if you are  
19                   using that categorization because there is no inventory  
20                   of soils on that basis.

21                   There is related information to give some  
22                   general notion and the field may have on a regional  
23                   basis some general notion of the orders of magnitude of  
24                   soils which we might categorize as shallow as distinct  
25                   from -- this would be orders of magnitude rather than

1 any simple linear measure and those have, I believe,  
2 been made available.

3 Q. When you say they have been made  
4 available, is that the information which appears on  
5 page 12 of the reply witness statement No. 5?

6 A. I have it, Madam Chair. It is on  
7 page 27 of the reply evidence and it is the second full  
8 paragraph from the top. I could read that for the  
9 benefit of the Board, if you so require.

10 Q. I don't think it is required, but  
11 perhaps you could just answer the question whether  
12 information of that order of magnitude is sufficient  
13 for prescription setting?

14 A. The answer is no.

15 Q. Mr. Armson, during Mr. Neary's  
16 evidence and in fact in Exhibit 2200A, which is the MOE  
17 witness statement - I don't think you have to look at  
18 it - at page 6 Mr. Neary quotes you or refers to your  
19 evidence back in Panel 9 and states that you had  
20 indicated, and I am quoting Mr. Neary:

21 "Caution would be exercised on certain  
22 site types when using full-tree logging  
23 for site class 3, too poor for timber  
24 production."

25 In your evidence, if we go back, you



1 didn't refer to site types, you just referred to the  
2 word on certain types. Is there a difference between  
3 referring to certain sites on the one hand and  
4 referring to certain site types on the other?

5 A. There is a most significant  
6 difference. When you refer to site type you are  
7 automatically referring to a category and some form of  
8 classification.

9 I specifically and very deliberately did  
10 not use that term and used the word site meaning a  
11 given site which would have some unique or set of  
12 attributes, soils and so on, and you would exercise  
13 cause in relation to those; In other words, a site as  
14 seen and viewed by a forester on the ground.

15 So very specifically there is no  
16 similarity between site type which is a categorization  
17 of drawing together and saying -- and these categories,  
18 whatever they may be, have certain criteria.

19 My use of the word sites said no, that is  
20 something that is judged singly at the field level.

21 Q. The last question for you is to  
22 respond to Mr. Neary at page 65434 where he stated that  
23 nutrient depletion -- pardon me:

24 "MNR staff do not take nutrient  
25 depletion into consideration in timber

1 management planning."

2 That was the statement. Could you  
3 respond, please.

4 A. Yes. A field forester doesn't --  
5 there is no way in which a forester can assess nutrient  
6 depletion. Depletion means a quantitative assessment  
7 of the amounts, in a situation the amounts that are  
8 coming in and the amounts that are lost. Obviously  
9 that cannot be done. It could not even be done by a  
10 skilled scientist in many instances.

11 What they do is look at the forest, at  
12 the soils and the conditions in relation to the  
13 application of a certain practice and they can make  
14 judgments about that in relation to those visible  
15 conditions that they see, but they don't assess  
16 depletion per se. In fact, they couldn't do it.

17 Q. Thank you, Mr. Armson.

18 Mr. Greenwood, your particular study,  
19 exhibit or topic Long-Term Forest Productivity Study  
20 Full-Tree Harvest, you have already indicated that  
21 there is a linkage with what Professor Armson has  
22 spoken about, that this particular issue was something  
23 which is not being ignored by the Ministry of Natural  
24 Resources.

25 I was just wondering whether you could

1 provide the Board with some indication of how the  
2 Ministry is addressing this particular issue both in  
3 the short term and the long term?

4 MR. GREENWOOD: A. Certainly. As I  
5 mentioned this morning, the program I am about to  
6 describe is really the second part of the answer, what  
7 do we do right now given the debate and research  
8 community concerning the relevance of estimated  
9 nutrient changes following full-tree harvest.

10 Since the first set of terms and  
11 conditions that the Ministry produced the MNR has  
12 committed to examining and developing a long-term study  
13 as it pertains to the effects of full-tree harvest and  
14 full-tree chipping on long-term forest productivity.  
15 That particular term and condition currently is MNR  
16 draft term and condition No. 85.

17 Now, the first action with regard to this  
18 particular term and condition and the subject was  
19 within the research community when they struck a  
20 technical working group, this particular working group  
21 calling themselves the sustainable productivity of  
22 forest ecosystems in 1991 and at that time they  
23 developed a strategic direction which is outlined in  
24 our overhead 3.

25 MADAM CHAIR: Excuse me, Mr. Greenwood.



1 Does your discussion have nothing do with our term and  
2 condition No. 84? Are you covering both those terms  
3 and conditions in this presentation?

4 MR. GREENWOOD: It is my understanding  
5 that term and condition No. 84 is the growth and yield  
6 term and condition. I don't have it in front of me  
7 right now but if I remember correctly, yes, which was  
8 in fact related to the program I described this  
9 morning.

10 MADAM CHAIR: Yes.

11 MR. GREENWOOD: So this particular  
12 program now is in relation to term and condition No.  
13 85.

14 MADAM CHAIR: Okay.

15 MR. GREENWOOD: So the technical working  
16 group when they formed in 1991 developed a strategic  
17 direction for themselves which is outlined in this  
18 overhead, first of all, to coordinate related research  
19 efforts and that coordination right now is primarily  
20 Forestry Canada -- between Forestry Canada and Ministry  
21 of Natural Resources.

22 The direction also was to satisfy  
23 specific information needs which had been committed to  
24 at this particular timber environmental assessment, but  
25 also in MNR's sustainable forestry initiative, as well

1 as Forestry Canada's Ontario region strategic plan.

2 They also were concerned with focusing on  
3 a better understanding of both the structure and  
4 function of forest ecosystems and knowledge gaps in  
5 human and natural disturbance.

6 So the strategic direction is somewhat  
7 wider than the term and condition, but the major  
8 impetus for it and this committee was in fact this term  
9 and condition. In fact, in a couple of overheads I  
10 will talk about their short-term direction which is  
11 directly related to this term and condition.

12 On the next overhead I have indicated who  
13 the current members are of this technical working  
14 group. Dr. John Jeglum is a co-chair representing  
15 Forestry Canada and Dr. Jeglum's name has been put  
16 forward in the hearing on a number of pieces of  
17 literature, particularly pertaining to black spruce  
18 studies in the Nipigon area, as well as Dave Morris who  
19 is currently located at the Centre for Northern Forest  
20 Ecosystem Research in Thunder Bay and has particular  
21 expertise in silviculture and sites.

22 The other Forestry Canada members are Dr.  
23 Neil Foster and Dr. Ian Morrison, both who also have  
24 extensive experience with studies and the soil  
25 processes and productivity in jack pine. At least some

1 of the jack pine research studies have also been put  
2 forward in evidence in front of this Board, but also in  
3 the Great Lakes/St. Lawrence Forest around the Sault  
4 Ste. Marie area.

5 Dr. Al Gordon has spent his whole career  
6 studying ecosystem processes primarily in spruce and  
7 also has had literature put forward at these particular  
8 hearings.

9 Dr. Balakrishnan is an expert in  
10 measuring some of these soil processes and particularly  
11 the cycles and will be playing that role in particular  
12 MNR studies.

13 So this working group pulls together a  
14 team of, as Mr. Armson mentioned this morning,  
15 internationally recognized scientists in the area of  
16 question that is being examined and particularly with  
17 the Ontario experience.

18 There is a feeling on the working group  
19 that it could expand potentially as other expertise in  
20 Ontario -- or enters Ontario in relation to some of the  
21 topics that will be examined with that major strategic  
22 direction.

23 The technical working group has set for  
24 themselves a short-term objective and that relates to  
25 facilitating the development of a common approach in



1 the full-free harvesting companion studies, and by  
2 companion studies they mean that the workload with  
3 respect to this particular study has been split. The  
4 Ministry of Natural Resources will be leading studies  
5 into black spruce and Forestry Canada into jack pine.

6 The companion studies will be directed  
7 and controlled through this working group who over the  
8 last year have been primarily focusing on ensuring that  
9 they have common study objectives, experimental design,  
10 harvesting treatments and sampling protocols. These,  
11 of course, would be necessary to ensure that the  
12 results of the studies are comparable even though they  
13 are working on a different species.

14 I have included the next overhead just to  
15 emphasize the point that although the studies cover  
16 both jack pine and black spruce, for sake of brevity I  
17 will only be describing the details of the black spruce  
18 study, but we must recognize that they are essentially  
19 similar studies and working group will be guiding the  
20 particular studies to ensure that they are following  
21 similar protocols.

22 On this particular study, as I also  
23 mentioned, Dave Morris is the project leader and Al  
24 Gordon will be playing largely and advisory role as a  
25 result of the wealth of his experience with Dr.

1 Balakrishnan providing the expertise for the detailed  
2 nutrient pool and flux work.

3 I thought I would go through the  
4 objectives of the study. Again, in this case, the  
5 black spruce study, but similar objectives are or will  
6 be in place for the jack pine study.

7 First is to provide comparisons of the  
8 effects and varying harvest methods which will allow an  
9 examination of the structure and function of boreal  
10 ecosystems. Actually on as well as at to study the  
11 structures and functions of the boreal ecosystems.

12 Two, part of that comparison to obtain  
13 accurate values which characterize and quantify the  
14 site recovery processes and that will take place by  
15 studying nutrient cycling, productivity, biomass,  
16 questions such as run-off, revegetation and those will  
17 take place through a host of scientific measurements on  
18 plots.

19 Another objective is to illustrate any  
20 differences in recovery or restoration dynamics across  
21 a wide range of site conditions, in this case black  
22 spruce site conditions.

23 No. 4, to compare the processes after  
24 harvest to those after natural disturbance.

25 Now, the natural disturbance that the

1 researchers are primarily going to focus on is fire and  
2 this is not an easy task to do. This is an objective  
3 that the research team hopes to accomplish, aren't sure  
4 they can accomplish, but are attempting to deal with.

5 The reason being that the way their study  
6 is set up they would like to have before and after  
7 measurements with respect to the nutrient cycle and, of  
8 course, it is merely impossible to determine where a  
9 fire is going to take place ahead of time and get those  
10 measurements. So they are struggling with this, they  
11 are maintaining it as objective and they are trying to  
12 seek a solution as to the best way of accomplishing  
13 that.

14 This is important, of course, because we  
15 know, as Mr. Armson mentioned this morning, that  
16 nutrient dynamics are altered following natural  
17 disturbance as well and all too often the comparisons  
18 with respect to changes in this cycles are between an  
19 undisturbed and a disturbed state where in fact the  
20 scientific question in terms of relevance and  
21 resilience in the ecosystem would be to compare  
22 disturbance to disturbance, or at least a natural  
23 disturbance that we know has gone on for millennium and  
24 the cycle has recovered from.

25 They also want to develop predictive



1 models which can be used to determine site stability  
2 and resilience parameters. So the task here will mean  
3 that they have to zero in on the key measurable  
4 variables which can then be formulated into models and  
5 used in a predictive way so as to allow them to predict  
6 between sites and with respect to possibly changes in  
7 harvesting systems.

8 Finally, to incorporate the results of  
9 this research into appropriate implementation manuals  
10 which are then usable by field managers.

11 MADAM CHAIR: Mr. Greenwood, does the  
12 Board take it then that the objectives of the study  
13 design that you just outlined are much more ambitious  
14 than the wording of MNR's term and condition which  
15 suggests that only the effects of full-tree harvesting  
16 and chipping will be assessed in the long-term  
17 productivity study?

18 What you are saying is you are looking at  
19 various harvesting techniques and you are investigating  
20 the differences between natural disturbances and timber  
21 operations?

22 MR. GREENWOOD: The researchers have come  
23 up with these objectives as -- let me back up. This is  
24 a very complicated study. One of the largest I have  
25 seen.

1                   It was designed by the researchers to  
2 specifically answer the question related to full-tree  
3 harvesting and their best expertise suggested that this  
4 was the scope of the study required to do that and to  
5 answer it in a -- as we said, to complete the evidence  
6 with regard to this, that anything short of that would  
7 in fact answer part of the question but not take it the  
8 total way that would allow something to go into  
9 implementation manuals.

10                   So, yes, it is a very comprehensive  
11 study, but I think they would argue that it is what is  
12 necessary to answer the question in the term and  
13 condition.

14                   It will, however, allow them also to  
15 answer a number of questions about the functioning in  
16 these cycles in the forest and in the natural  
17 conditions.

18                   MADAM CHAIR: I am just going to ask one  
19 more question and I am going to drop this.

20                   If five years from now we decide we are  
21 not going to do full-tree harvesting and chipping,  
22 Industry have found a better way of doing things, a  
23 more economical way of doing things, something they  
24 prefer doing, we never hear about full-tree harvesting  
25 and chipping again and you have invested a lot of money

1 in this study, will we be getting benefit from this  
2 study that can be applied to any comparison between the  
3 effects of harvesting and the effects of natural  
4 disturbance?

5 MR. GREENWOOD: Yes, I would say that  
6 that would be true and, in fact, the broader  
7 objectives, strategic directions of the technical  
8 working group work where they suggested they wanted to  
9 investigate the structure and the functioning of  
10 ecosystems would reflect that.

11 That, however, is necessary to answer the  
12 question on full-tree harvesting, but it is also a  
13 knowledge gap that we would very much like to have  
14 filled.

15 In terms of the black spruce plots, the  
16 scientists involved created three plot types. The  
17 measurements that are needed to examine some of these  
18 nutrient pools and fluxes and relate that to  
19 productivity are extremely detailed. There is a great  
20 number of procedures involved, enormous amounts of time  
21 and resources required.

22 As a result, the approach that they have  
23 used or designed includes intensive plots where  
24 instrumentation is set up and recorded over a long  
25 period of time, but also satellite plots where more



1 static measurements are taken, where less measurements  
2 are taken and where instrumentation is not used just to  
3 reduce costs.

4 They have designed a system that also  
5 includes what they are calling chronosequence plots or  
6 just a series of plots which take into account or  
7 attempt to take into account time and are, therefore,  
8 installed at the same time, but in conditions that  
9 reflect various ages from harvest.

10 In the black spruce study they have  
11 defined nine different plots to cover the range of site  
12 types, the most important site types or common site  
13 types for black spruce.

14 They have described nine harvest  
15 chronosequence sites and they have yet to determine the  
16 number of plots required for the fire chronosequence  
17 work, where they are going to be located.

18 The black spruce lots will be located in  
19 the Thunder Bay, Geraldton, Nikina area, the ones that  
20 have been located so far in the hopes that some of  
21 these plots can also be utilized and capitalized on by  
22 other research programs which are underway at the  
23 Centre for Northern Forest Ecosystem Research and  
24 possibly Lakehead University.

25 Again, I would just like to emphasize

1 this is a very comprehensive set of plots as far as  
2 research goes and we must remember that this is  
3 repeated again for jack pine in order to answer the  
4 question at hand.

5 Now, each of those plots on the previous  
6 page on the ground will look something like this.  
7 Probably not as regulated as this given the conditions  
8 in the field, but again just to give you a scope of the  
9 program.

10 Each one of those plots has in fact 16 30  
11 metre by 30 metre subplots upon which treatments will  
12 vary and measurements will be made.

13 In your question, Madam Chair, earlier  
14 you talked about the harvest treatments. The harvest  
15 treatments that will take place are all related to the  
16 amounts of biomass removed and, therefore, the  
17 full-tree question.

18 At the bottom of the page you will see  
19 those treatments. One will be to log and just leave  
20 the slash there, another one would be to log and remove  
21 the slash and another to log but also to remove the  
22 slash, the duff and the stumps. So basically all the  
23 organic material, to log and remove the slash, chip and  
24 redistribute the remaining materials following chipping  
25 and controls so they will not be logged.

1           They expect that the harvested areas will  
2     be subject to a normal site preparation treatment for  
3     these particular areas, probably something light like a  
4     Brackie scarifier and then be planted.

5           It is my understanding that some of the  
6     plots will also be left unplanted to determine some of  
7     the natural dynamics that go on in those plots without  
8     planting.

9           In terms of the sampling of long-term  
10    monitoring in slide 12, each of those subplots have  
11    been treated, actually each of them, even the controls,  
12    will be divided into four sampling quadrants and the  
13    reason to do this is to separate sampling that is  
14    -destructive in nature or disruptive in nature from that  
15    which is not.

16           You will notice that there are four main  
17    areas that the sampling and measuring has been grouped  
18    under. The first relates to the flora on the site and  
19    this is all of the flora on the site. The destructive  
20    work deals with examining and quantifying the nutrient  
21    pools of biomass, labelled productivity here.

22           Some minor disturbance will be required  
23    to put instrumentation in place to determine nutrient  
24    fluxes in the upper right. This instrumentation is  
25    quite complex and expensive and probably the primary



1 reason why there is only going to be one set of  
2 intensive plots.

3 As well, if you are going to relate it to  
4 productivity there has to be crop tree performance and  
5 measurements related to that.

6 MR. MARTEL: Did you say there was only  
7 going to be one area because of costs? Will you run  
8 that one by me again.

9 MR. GREENWOOD: Certainly. If I can take  
10 you back to overhead 9, labelled Sb, black spruce site  
11 descriptions.

12 If you have questions I would be glad to  
13 answer them because this is rather complicated when you  
14 get into sampling and I don't want to lose anybody.

15 You will see taht there are nine site  
16 numbers crossing a range of site types for black spruce  
17 or site conditions. Each one of those numbers  
18 represents 16 of those subplots. One grouping of  
19 three, either 1, 2, 3; 4, 5, 6 or 7, 8 and 9 will  
20 become an extensive set of plots. So 16 times three  
21 subplots will be instrumented and measured intensively.

22 The researchers involve have not yet  
23 determined which set of three conditions will be  
24 instrumented at this point in time. They are still  
25 attempting to locate some of those sites.

1                   You will notice by the asterisk that  
2           there are still at least one of those plot groupings  
3           missing from each of those sets and until they have  
4           those they will be hesitant to determine which set will  
5           become the intensive and measured sites and the other  
6           ones then will become satellite sites which really are  
7           also measured quite intensively, but not instrumented  
8           and not measured to the same extent that would require  
9           the costs associated with instrumentation.

10                   MR. MARTEL: What happens if something  
11           were to destroy that area after 10 years and you  
12           haven't got the instrumentation?

13                   All of the 10 years goes out the window  
14           because you can't duplicate it somewhere else?

15                   You can't compare it if you have only got  
16           instrumentation, can you? Do you know what I am  
17           driving at?

18                   MR. GREENWOOD: One of the critical  
19           factors in locating plots is to try and reduce the risk  
20           of that. It is probably the greatest fear of a  
21           researcher in a long-term study, is to have something  
22           happen to the plots or the equipment such that if the  
23           equipment gets lost you can reinstrument and remeasure  
24           and its dollars, but if the total site is lost you have  
25           major problems.

1                   So they attempt to locate those sites in  
2                   a way that that will not happen. These sites are  
3                   generally protected, they are registered. In fact,  
4                   these particular sites are all being located with the  
5                   cooperation of the local industry who in this case is  
6                   an FMA where the plots are located on. They are aware  
7                   of it and they are cooperating in terms of the  
8                   harvesting that will take place on it.

9                   So it is always a question whether you  
10                  hide these or whether you flag them and label them like  
11                  crazy to keep this protection in place, but if it is  
12                  just the instrumentation that's lost it can be  
13                  reinstrumented at a cost for sure, but if the total  
14                  plot was somehow lost in fact the only way I could see  
15                  that it would be totally lost would be through fire or  
16                  through a major disturbance like that.

17                  In fact, that makes all the problem with  
18                  fire chronosequence to create a new one.

19                  So how is this study going to be any  
20                  different? There is debate in the literature between  
21                  scientists and yet it is still left the scientific  
22                  community debating on the topic.

23                  I think before I go through this I will  
24                  digress just for a second to attempt to put some degree  
25                  of clarification of my understanding of how new



1 knowledge like this is generated and used and why this  
2 debate in the literature in my mind is not unusual.

3 When in fact the scientific community or  
4 a particular scientist has an area in question in his  
5 mind or her mind, whether it be an untested hypothesis  
6 or a thought, generally the first thing they do is  
7 generate a hypothesis and then attempt to test it  
8 themselves.

9 That testing would be done through the  
10 collection of data and information, an examination of  
11 other related projects to see if that can shed any  
12 light on it, but eventually it ends up that a report is  
13 produced and then it is put into literature.

14 When it is put into literature it is then  
15 usually reviewed, criticized, debateed upon by peers  
16 and colleagues and some of them generally try and  
17 repeat it.

18 This is not just common to forestry  
19 research. In fact, we quite often see reports in the  
20 paper from the medical community when one of their  
21 reports gets put into literature.

22 At that point in time there may be new  
23 knowledge associated with it, but there may not be. It  
24 is generally part of the puzzle. It is this process of  
25 debate that in fact moves that knowledge forward and

1 understanding forward and the ability to repeat it that  
2 allows you to say that you maybe filled a knowledge  
3 gap.

4 So this debate around this subject in the  
5 literature is not uncommon and in fact it is out there  
6 on many other topics at any point in time in the  
7 literature.

8 So what's the significance of that to  
9 this particular issue? Only that as a field forester I  
10 for years would watch these debates in the literature  
11 and gain whatever knowledge I could from that.

12 It didn't mean that things changed  
13 immediately in what I was doing, but my sensitivities  
14 may have been raised with respect to an issue and I  
15 would attempt to learn from that debate.

16 I would attempt to ask people that I knew  
17 involved in that debate. They were generally presented  
18 at symposiums and workshops that I would attend and  
19 that knowledge then would evolve as more and more  
20 people attempted to repeat it as the debate worked its  
21 way through.

22 This particular topic entered evidence at  
23 the debate stage and it is still at the debate stage.  
24 So how will this study be any different in just adding  
25 to the debate, and that's what I wanted to talk about

1 for a few minutes on this. We feel there is a  
2 difference, but it is also one of the reasons why this  
3 is such a comprehensive study. In order to make that  
4 difference we have had to do certain things.

5 The first is that it compares actual  
6 treatments to controls. These sites are actually going  
7 to be harvested. This is the direct evidence that I  
8 think Mr. Armson was referring to as opposed to  
9 simulated evidence which is in many of the pieces of  
10 literature and debate where total biomasses were  
11 measured and then it was estimated what would have been  
12 removed during harvest and then relevance was  
13 determined. This will actually do the removal and then  
14 measure the differences, this study.

15 There is also going to be an attempt to  
16 compare natural disturbance to human disturbance and,  
17 as I mentioned earlier, we know the forests have been  
18 recovering in a nutrient sense from severe disturbance  
19 from years and that we would like to make that  
20 comparison as opposed to the undisturbed state.

21 The measurements will be continuous over  
22 time. We will actually monitor those changes over time  
23 as opposed to taking static measurements and then  
24 interpreting those measurements temporally.

25 It is the hopes of the researchers that



1 this will allow for a capture of the natural  
2 fluctuations that take place that, again, Mr. Armson  
3 referred to over time.

4 It examines two major commercial species  
5 throughout the boreal over a range of common and  
6 important sites for those species as opposed to many of  
7 the studies which examine one species on one site  
8 condition and, again, attempt to interpret.

9 I am not aware of any study actually to  
10 date that has attempted to measure below ground  
11 nutrient pools as well as the above ground. By below  
12 ground here I mean the root system.

13 It is recognized that there is generally  
14 as much, sometimes more, biomass related to a tree  
15 below ground than there is above ground and we also  
16 know that trees are able to translocate nutrients  
17 throughout the trees at various times of the year,  
18 basically recycle and reuse them, and yet studies today  
19 have rarely examined this particular aspect of the  
20 nutrient pool. This study will attempt to do that.

21 It also builds on existing long-term data  
22 sets from Ontario. Drs. Foster and Morrison have been  
23 examining nutrient dynamics with jack pine into the  
24 decades now, as well as Dr. Gordon with respect to  
25 spruce and those data sets will lend information to

1 this particular study.

2 There is also the opportunity for this  
3 literature, scientists and practitioners.

4 They then through the use of local  
5 knowledge want to determine the relative distribution  
6 and abundance of sites with potential low productivity.  
7 The reason being that they feel it is important to  
8 determine the significance of those sites in the  
9 province, and then based on the significance recommend  
10 an interim set of good practices using existing  
11 knowledge and expertise, again literature and expert  
12 opinion.

13 So, therefore, they plan to not only look  
14 at the potential effects, but the significance --  
15 actually the potential sites where effects could take  
16 place, but significance of that potential locally,  
17 regionally and probably provincially recognizing that  
18 if it is only a very small number of sites that this  
19 potential exists that issue may be isn't as great as  
20 some may think.

21 So in terms of summary, we have initiated  
22 a long-term very comprehensive scientific study to  
23 examine the key questions or put forth with regard to  
24 this debate under Ontario conditions.

25 There is currently an internationally

1 recognized team of scientists assigned to the program,  
2 that those team of scientists represent a cooperative  
3 venture between I guess the two largest forest research  
4 institutions in Ontario and that interim guidelines  
5 will be produced for best practices while awaiting the  
6 results of this long-term study and that those best  
7 practices will be developed through an expert system.

8 MR. FREIDIN: Madam Chair, I think we may  
9 as we well start Mr. Grvelines which is the last  
10 witness, unless you want to have a break before we do  
11 that.

12 MADAM CHAIR: We will take our afternoon  
13 break now and be back in 20 minutes.

14 ---On recessing at 2:30 p.m.

15 ---On resuming at 2:45 p.m.

16 MR. FREIDIN: Q. Mr. Kennedy, I  
17 understand that you have a couple of introductory  
18 remarks to the evidence in relation to socio-economic  
19 issues. Perhaps you could proceed.

20 MR. KENNEDY: A. Madam Chair, I believe  
21 this will be Exhibit 2306; is that correct?

22 MADAM CHAIR: Yes. Mr. Grvelines 13-page  
23 hard copy of the overheads will be 2306.

24 ---EXHIBIT NO. 2306: Hard copy of overheads consisting  
25 of 13 pages re Mr. Grvelines.



1 MR. KENNEDY: Madam Chair, you will see  
2 the heading of our presentation is called  
3 Socio-Economic Issues and I would like to point out to  
4 the Board that throughout the course of the hearing MNR  
5 has had a variety of witnesses come to the hearing and  
6 speak on socio-economic matters.

7 I thought I would just take a moment to  
8 highlight of a couple of the phrases that I see  
9 emerging through the witness statements and comments  
10 that I have reviewed in the transcript.

11 Quite often in the hearing you have heard  
12 MNR witnesses talking about with regard to  
13 socio-economic analysis in terms of the kinds and  
14 amount of information that we collected in  
15 socio-economic issues and the level of analysis that we  
16 do is dependent upon the risk of harm being done.

17 That was one of the common themes that we  
18 had used throughout the course of our discussions when  
19 dealing with these issues.

20 Other witnesses pointed out that there is  
21 a variety of different analyses, approaches or  
22 techniques used ranging from simple cost data as it  
23 might deal with some of our alternative evaluations  
24 through to various financial analysis such as I believe  
25 one example has been discussed in the hearing relating

1 to ferry proposal in Lac Seul where considerable  
2 detailed information was collected.

3 Another common approach heard was that we  
4 like to use the right approach for the task at hand  
5 dependent upon the level of the situation being  
6 investigated and the risk of harm involved.

7 Another point that I believe has been  
8 made time and again by MNR witnesses is that we  
9 recognize there is a socio-economic component to most  
10 of the decisions that are made in timber management  
11 plans and the decision-making structures that are put  
12 in place.

13 Some examples of those kinds of things  
14 are the involvement of local citizens' committees and  
15 indeed the area of concern process and the overall  
16 public consultation program that we have are all  
17 regarded as elements of socio-economic components.

18 From there I think it is appropriate to  
19 move to slide 2 of this presentation and having a look  
20 at what the parties have said.

21 On slide 2, which is an attempt to set  
22 the stage for the balance of the presentation, we tried  
23 to summarize in two points the kind of information that  
24 we believe has been led by other parties on  
25 socio-economic issues.

1                   Simply to quote it, we believe that we  
2                   have heard from parties that there is a need to train  
3                   and sensitize MNR and industry staff that are involved  
4                   in our planning activities to better understand and  
5                   evaluate and document socio-economic advantages and  
6                   disadvantages during timber management planning.

7                   Several parties have come forward and  
8                   made suggestions that we should adopt more formal  
9                   approaches for valuing resource, identifying costs and  
10                  benefits and socio-economic impacts at the operational  
11                  TMP level and also at the land use planning level.

12                  Well, MNR has been listening and we are  
13                  moving in some of those directions. If you were to  
14                  turn now to slide 3 I would just like to give you a bit  
15                  of an introduction to the book that Mr. Grvelines is  
16                  going to be referring to.

17                  Madam Chair, I believe you have been  
18                  familiar with the Directions '90 document that MNR has  
19                  prepared and that will be spoken to in some detail  
20                  during Panel 4, but I would simply like to make  
21                  reference to it now. I believe it had been filed in  
22                  earlier evidence.

23                  It is often regarded as a -- or described  
24                  as a foundation for developing group for resource  
25                  management and as such it serves as a guide for policy



1 development. To that end there are three supporting  
2 strategies that are identified as part of that  
3 Directions '90.

4 One is that we should be seeking greater  
5 number of partnership in resource management; the  
6 second strategy is that we need to improve our  
7 knowledge base, our information available, not only for  
8 use in resource planning, but also for use in a variety  
9 of other aspects of management and providing  
10 information to publics. Also, there is a recognition  
11 that we need to ensure that we value our resources  
12 properly and it is on this matter that Mr. Grvelines  
13 will be speaking further.

14 - Coming out of the Directions '90 document  
15 are a number of new initiatives within the Ministry of  
16 Natural Resources and the one that the Board has heard  
17 about several times is the overall initiative that we  
18 refer to as sustainable forestry initiatives.

19 It is under that initiative that there is  
20 a specific program which referred to as the forest  
21 values program and, again, Mr. Grvelines is heading up  
22 that program and we have invited him here today to  
23 elaborate on that program.

24 What in essence we are doing though is we  
25 are putting forward what we believe to be an Ontario

1 solution and we will be dealing with the Ontario issues  
2 rather than trying to import what my appear to be quick  
3 fix solutions from other jurisdictions.

4 With that background I would ask Mr.  
5 Grvelines to continue with the presentation.

6 MR. GRVELINES: Thank you. Before I  
7 proceed to the forest values program I would like to  
8 take a minute to sort of review what Directions '90 has  
9 to say about valuing resources at the Ministry level.

10 There is a one-page description of it.  
11 Basically a number of different concepts were described  
12 or factors were described in the document to sort of  
13 address the issue of values resource, all resources  
14 within the Ministry. It ranges from basing the values  
15 on a full range of benefits direct and indirect,  
16 discusses market values, social economic values, social  
17 costs, fair return to the owner, efficienct resource  
18 use and recovering their costs.

19 The purpose of this slide is really to  
20 bring forward the idea of how complicated the value and  
21 resources issue is and there are a number of different  
22 values which we can consider.

23 In the value and resources discussion  
24 within the Directions '90 document it is also  
25 recognized that this is an ongoing task; in other

1 words, values change as societal tastes and values  
2 change. So it is not a matter of doing a spot check on  
3 what values are today and incorporating that into our  
4 program. This has to be an ongoing effort and as such  
5 it requires constant public involvement.

6 It is something we are working on and  
7 hopefully we will be able to bring that about, but  
8 certainly that is the cornerstone of the forest values  
9 program.

10 Turning now to slide 5 which is the  
11 official objectives of the forest values program, you  
12 can see that it really falls into two closely related  
13 groups.

14 The first objective is to develop  
15 recommendations for a provincial Crown forest revenue  
16 system which are responsive to the corporate objectives  
17 of the Ontario government, not merely the Ministry of  
18 Natural Resources; and secondly, reflects the financial  
19 value of the resources to the forest using sector.

20 What that is partly getting at is the  
21 fact that when we do calculate values you can't always  
22 translate values into prices. So that's what partly  
23 the second bullet under there is referring to.

24 The second objective is to enhance MNR's  
25 knowledge of resource values based on a full range of



1 benefits in support of integrated resource management  
2 objectives; in other words, knowing the relative values  
3 that society places on the great variety of good and  
4 servicess off land base is very important for us to  
5 decide the bundle of goods and services that we should  
6 be managing for.

7                   Turning now to slide 6. The forest  
8 values program itself is divided into three major  
9 components. The first component is industrial values.  
10 By industrial I am referring to the extractive sector;  
11 sawmills, logging sector and pulp and paper mills, that  
12 sort of thing, industry. So in there we are focusing  
13 on the value of the forest to the timber using sector  
14 -very specifically.

15                   The second component is the  
16 non-industrial sector and by that I mean there are  
17 commercial uses of the forested land, such as lodges,  
18 whatnot, which are commercial and there are also  
19 non-commercial uses of the land say for personal  
20 recreational uses and whatnot. So there we are also  
21 trying to look at the values that are placed on forests  
22 and those uses.

23                   Thirdly, we are trying to identify the  
24 socio-economic impact of the forest sector in all of  
25 its complexity. There we are focusing on the regional

1 and district employment -- well, various impacts on  
2 communities and whatnot.

3 So now in the next three slides I will  
4 take each one of those and discuss them in a little  
5 more detail. There is another slide in the way, the  
6 general approach which we are taking in each one of  
7 these components.

8 Slide 7, at a very fundamental level we  
9 are starting or reviewing and evaluating what has  
10 already been done to date in Ontario and elsewhere. We  
11 are doing that through a variety of mechanisms, that's  
12 literature search, that's bringing in people from  
13 outside the province to give seminars to Ministry staff  
14 and a lot of it has to do with networkubg, spending a  
15 lot of time on the telephone with other researchers  
16 elsewhere in North America.

17 Secondly, we are attempting to identify  
18 appropriate methodologies for estimating values and I  
19 think you have heard some discussion in earlier  
20 evidence of the various methodologies available for  
21 estimating the non-market values, the hedonic pricing  
22 contingent valuation and whatnot.

23 Again, much of that -- some of it is well  
24 established in the literature and practised. Some of  
25 it is well established in the literature and still is

1 contentious before it can be implemented. So we are  
2 looking at that again from, again, an Ontario context.

3 The next issue is the identification and  
4 collection of data needed to implement these  
5 methodologies. In this regard we are even looking at  
6 information which has been within the Ministry for a  
7 long time, licensing information for example, which we  
8 can salvage and use to support some of these methods.

9 Finally, we have initiated or we are in  
10 the process of initiating a process to consult with our  
11 publics to ensure that the range of values have been  
12 addressed, and by that I mean two things.

13 First of all, whatever recommendations go  
14 forward within the Ministry into the Ministry's  
15 decision-making process, that the range of options that  
16 we have identified are grounded somewhere with the  
17 public. So we have a solid range that goes forward and  
18 it may become evident later on in the discussion why  
19 that's important.

20 Secondly, we want to maintain track of  
21 these changing values, values which are -- services  
22 which were never valued before may become valued in the  
23 future. So we have to keep track of the emerging  
24 values. So hopefully the consultation process will be  
25 something that is continuing.



1                   Going on to slide 8. Just to give you a  
2                   feel for some of the projects undertaken on the  
3                   industrial values component of the project. We have  
4                   one project underway in which we are attempting to  
5                   develop the accounting framework for MNR forestry  
6                   related expenditures.

7                   The framework attempts to use what is the  
8                   private sector - I think I am fair in saing this -  
9                   what is the private sector standard which is generally  
10                  accepted accounting principles.

11                  Currently MNR knows how much money we  
12                  spend in the aggregate on forest related expenditures,  
13                  but we have never attempted to put it it on the same  
14                  basis as the private sector would account for its  
15                  expenditures.

16                  Secondly, we have initiated or in the  
17                  process of finalizing a review -- well, on the slide  
18                  there, the second bullet, comparative approaches to  
19                  funding forest management activities.

20                  We have looked at 11 jurisdictions,  
21                  documented their approaches to funding forest  
22                  management activities. These jurisdictions are  
23                  elsewhere in Canada and in the United States.

24                  We are in the process now of sort of a  
25                  jurisdictional review of what has been written on it

1 where each of the jurisdictions now is reviewing what  
2 has been prepared.

3 The third example project there is a  
4 report which was done, revenue system policy  
5 implications. The purpose of this report was to  
6 identify almost an inventory of different mechanisms by  
7 which we could raise money, okay. It is a very  
8 important topic to treasury and economics these days.

9 And then discuss the strengths and  
10 weaknesses of each of these revenue mechanisms in terms  
11 of a sample of different policy objectives and policy  
12 objectives range from maintaining administrative  
13 simplicity to the investment efficiency or equity  
14 issues. That report is in the advanced stages of  
15 completion and it should be out to the public shortly,  
16 I hope.

17 Anyway, flowing out of each one of these  
18 projects as well as others which I haven't mentioned  
19 which will be documents which will in draft form be  
20 distributed to the public throughout whatever mechanism  
21 is established to receive their inputs. Hopefully  
22 constructive comments.

23 Turning now to page 9, looking at the  
24 non-industrial value segment. I think you have heard  
25 much about non-industrial values in the course of the

1       hearings.

2                       We are starting again from basics. We  
3       have collaborated with Forestry Canada at Sault Ste.  
4       Marie to prepare a review of Ontario studies on  
5       unpriced values and identified the strengths and  
6       weaknesss of those studies.

7                       Secondly, we have initiated an  
8       investigation of the application of the travel cost  
9       methods using existing MNR records. As you recall, the  
10      travel cost method basically -- we can use existing  
11      licencing records and whatnot. As long as we have  
12      where the user is from and tie the user to a specific  
13      geopgraphical area, we can then build models which will  
14      help estimate demand functions from the travel cost  
15      records.

16                      So far to date we have identified in the  
17      neighbourhood of 225,000 records per year within the  
18      Ministry and has that information on either some  
19      specialized software that we are leasing from the  
20      private sector which will enable us to put the  
21      distances on and whatnot on a more efficient basis.

22                      Thirdly, we are attempting to investigate  
23      the use of market information to determine forest use  
24      values. This is what has been described as the hedonic  
25      price analysis where we use market prices in order to



1 compute the value of certain attributes. Again, we are  
2 not far on that one because there is a lot of data  
3 collection involved, but that should take off probably  
4 this winter.

5 MR. FREIDIN: Q. Can you give me an  
6 example of what you are talking about there?

7 MR. GRVELINES: A. Well, the value of,  
8 say, cottage lots, for example. It is just one out of  
9 the blue.

10 We do have sales records for cottage lots  
11 and we can run a statistical analysis on that, we can  
12 determine what are the attributes that influence the  
13 value of cottage lots across the province and, you  
14 know, various uses again. It depends which uses we are  
15 talking about and whether there is market information.

16 We are also investigating the use of  
17 contingent valuation methods to estimate non-use values  
18 such as existence values and, again, I think you have  
19 heard something on existence values which is the value  
20 that members of society place upon the mere existence  
21 of, say, forests without every having the intention to  
22 actually use them in any way.

23 There we are reviewing that methodology  
24 and looking at some of the -- Forestry Canada has run a  
25 series of polls over the last six years so we have an

1 Ontario database for those and we are having a look at  
2 that.

3 In terms of the socio-economic impacts,  
4 we have contracted out the development of an  
5 input/output model at the district level for  
6 resource-related expenditures. I should have actually  
7 read the slide. I got myself twisted up there. So I  
8 will just read what is on the slide.

9 For resource-related expenditures,  
10 development of an economic impact assessment model  
11 which will quantify employment, income, trade balances,  
12 taxes and other variables by user group and government  
13 at the MNR district, region and provincial level.

14 So this is a way of trying to ground some  
15 of our analysis as the impacts in some more formal  
16 structure.

17 Another project, I guess the only other  
18 project other than the socio-economic impact is a  
19 cooperative project which we are end engaging in with  
20 the national accounts people in Ottawa where Ontario  
21 will be used as -- it is not on this slide, Dale.

22 We will cooperate with the national  
23 income people to try to develop a forestry component in  
24 the national balance sheet which is part of the  
25 national system of accounts. From an economics and

1 conservation perspective that's a very important  
2 project.

3 In terms of the implementation strategy  
4 then, we are taking what is really a two-prong  
5 strategy. On the one hand we are trying to develop  
6 economic tools for initial application at the regional  
7 and provincial levels. Hopefully we can drive that  
8 down at a lower level once we find out what the  
9 problems are and whatnot.

10 Secondly, there is the term and condition  
11 88 which commits MNR to investigate and develop  
12 appropriate methodologies for use at the TMP levels.  
13 That's sort of a bottom/up approach. We want to ensure  
14 that they are consistent. Anyway, I think Frank will  
15 address that one.

16 Before he does, I would just like to go  
17 to slide 12 in which I try to identify some of the  
18 implementation issues which we are facing.

19 The first point is that we are attempting  
20 to develop -- make estimates that Ontarians place on  
21 the use of their resources. The suggestion has been  
22 made elsewhere that perhaps we should import American  
23 averages or whatever. I have trouble even realizing  
24 that this has to be addressed.

25 I have sat here for two days and I have



1 heard foresters discuss the necessity of having  
2 reasonably detailed statistically sound estimates of  
3 biological parameters, and yet I think we have to take  
4 care when we then take those biological role functions  
5 and whatnot and place them into an economic framework,  
6 let's say, a benefit/cost analysis framework or  
7 whatever and then just slap American values against it.

8           There is something wrong with that. I  
9 think what I am getting at is that on the one hand we  
10 spend a great deal of time and effort to make sure we  
11 have very detailed comprehensive information on the  
12 physical growth and then when we try to put that into  
13 some sort of economic valuation framework we just sort  
14 of slap any old number against it. It's just wrong.  
15 Yes, okay, well that's the major thing in the Ontario  
16 solution for Ontario issues.

17           Sort of corresponding to that is the  
18 second point, that what we are attempting to do is stay  
19 away from provincial averages because we want to  
20 respect and be sensitive to the fact that various uses  
21 may have different values in different parts of the  
22 province and, in fact, it is exactly the same argument  
23 as earlier where rather than applying a provincial  
24 average across the province regardless of where you are  
25 we want to make sure that what we come up with is a

1 mathematical model which relates the values of the  
2 forest and various uses to various attributes of the  
3 forest, whether it be distance, whether it be the type  
4 of forests, proximity to lakes or whatever.

5 We want to fine tune the values function  
6 as close as possible while at the same time not having  
7 to do case studies on everything because that is the  
8 opposite extreme. The most costly approach is to do a  
9 case study on every use as every issue arises.

10 Q. Mr. Grvelines, what's the values  
11 function?

12 A. Okay. I guess I slipped that one  
13 through. The values function is simply the  
14 mathematical relationship between the relationship --  
15 between the value of the forest, any particular use,  
16 and the various attributes of the forest.

17 Is that clear? It is just a mathematical  
18 equation so that we can relate the value to a specific  
19 area.

20 Q. Can you give me an example?

21 A. Say the recreational value of timber  
22 may be a function or may be influenced by the number of  
23 people within the area, bussiness urban centres, the  
24 road network, the quality of the forest in some sense,  
25 that sort of thing.

1                   Q. You indicated that in the values  
2 program you are determining the values function at the  
3 provincial level and you are not doing it at the local  
4 level.

5                   Can you just explain a little bit more  
6 why you are doing it that way and why you are not doing  
7 it at individual forest management unit levels or  
8 geographic areas that are that small?

9                   A. Because basically to build up the  
10 functions from the bottom/up, from the FMU up we would  
11 need a lot of case studies.

12                  So what we are attempting to do is make  
13 use of whatever studies exist throughout the provincial  
14 -level plus add on some of our own studies so that we  
15 can start to develop this relationship and then refine  
16 it over a period of years.

17                  Is that clear?

18                  Q. Once you have developed those value  
19 functions, is there some possibility or expectation  
20 that they may be usable at a smaller geographic area  
21 such as a forest management unit?

22                  A. That's exactly where we are going  
23 with this, is to drive it down to the FMU level and if  
24 we can go lower than that we will, but again it depends  
25 upon the quality of information which we are able to



1       derive.

2                   Another implementation issue we have to  
3       address is the issue of substitution and this is  
4       perhaps one of the reasons why we are coming at this  
5       from the provincial level, is that the value of the  
6       forest area and any particular use is influenced by the  
7       ability of the user to simply go somewhere else as a  
8       substitute.

9                   So if the user can simply go outside the  
10       district boundaries or the regional boundaries or  
11       whatever, we want to ensure that we can capture the  
12       difference in the values.

13                   Then the fourth bullet is the aggregation  
14       problem. This is a technical problem largely brought  
15       about by the fact that we have introduced non-use  
16       values.

17                   When we deal with something like  
18       existence values the only way that you can really get  
19       at existence values is through contingent valuation  
20       which is essentially willingness to pay surveys.

21                   The trouble with willingness to pay  
22       surveys is that you are then getting sort of a  
23       hypothetical value that people would place on it and  
24       there is a logical problem when you try to add that to  
25       something like the results of a travel cost analysis.

1 Travel cost, hedonic pricing and market  
2 values are based upon the value which the person --  
3 which a user demonstrate he placed on it. He actually  
4 paid that out as hard cash or whatever.

5 The contingent valuation technique, on  
6 the other hand, is based upon sort of anticipated  
7 values. So it is very sensitive to the knowledge the  
8 person has of the issue at a particular time of the  
9 survey. So there is a real problem here when you try  
10 to add those two different types of methodologies  
11 together.

12 So whenever existence values become  
13 important, this is going to have to be addressed  
14 -somehow.

15 MR. MARTEL: Has the willingness to pay  
16 ever been tested to determine if in fact people are  
17 prepared to pay what they say they are prepared to pay  
18 for in cold hard dollars terms?

19 MR. GRVELINES: One of the purposes of  
20 what we are doing is to check exactly that. We wants  
21 to find one experiment where we can cross-check to see  
22 whether they do pay what they say they are going to  
23 pay.

24 We haven't worked out that experiment  
25 yet. There are some comparisons in other

1 jurisdictions. I don't have them with me right now,  
2 but there is a natural variation, but there are real  
3 problems here.

4 Then another implementation issue, again  
5 this is the timing and the research, especially in  
6 order to conduct the research and consultation with the  
7 parties.

8 Again, on the issue of implementation  
9 issues, sort of relating it to the six point  
10 schedule -- I don't know what we would call it.

11 MR. FREIDIN: Perhaps I can introduce  
12 that subject matter, Mr. Grvelines.

13 During his evidence in OFAH or the  
14 -coalition's Panel No. 8 Dr. Victor submitted a number  
15 of overheads. They were marked Exhibit 2113.

16 I have a copy here, Madam Chair, of page  
17 27 of that exhibit. It is entitled Practical  
18 Implications of Incorporating Non-Timber Values in  
19 Timber Management. In fact spoken to by Dr. Victor,  
20 there is a list of some suggestions he made as to what  
21 Ontario or MNR could perhaps do in relation to this  
22 economic valuation.

23 Q. I would hand out a copy of that and  
24 once everyone has a copy, Mr. Grvelines, you can  
25 comment on how these particular issues are being



1 addressed, if at all, by the Ministry?

2 MR. GRVELINES: A. May I proceed?

3 In reviewing the six-point plan, I think  
4 there is much agreement here, but there is also some  
5 disagreement as to how to proceed.

6 First of all, in point one we are  
7 certainly attempting to do that. We are developing  
8 familiarity with the literature on non-timber values,  
9 the methodologies involved and whatnot and we are  
10 becoming quite knowledgeable as to their experience --  
11 as to their use elsewhere in North America.

12 To that extent we have hired the Banff  
13 School. They have come in to do a couple of seminars  
14 for MNR staff because we want to ensure that staff at  
15 all levels within the Ministry, including non-timber  
16 staff, are able to contribute to this program and  
17 understand why we are out doing things the way we are.

18 With respect to point No. 2 -- I'm sorry,  
19 point No. 1 I consider to be important.

20 With respect to point No. 2, we have  
21 developed an annotative bibliography of studies which  
22 we have been done within Ontario in the area of  
23 non-timber values. So that actually has been done and  
24 hopefully it will be published soon.

25 I would like to postpone or delay

1 discussion of point No. 3.

2           Going on to item No. 4 which is the  
3 coordination of routine data collection, a forestry  
4 pattern suitable for economic evaluation, we are  
5 actively investigating the use of existing data which  
6 we have routinely collected to try to see if we could  
7 get additional value added out of it and I am quite  
8 hopeful that we will.

9           Then we will have to identify the data a  
10 gaps, of course, and proceed were from there, but  
11 certainly No. 4 is something which we are actively  
12 pursuing.

13           No. 5 is perhaps the biggest area where I  
14 would part company with Dr. Victor. The development of  
15 generic estimates of non-timber values, the problem is  
16 that generic estimates -- and I believe the examples  
17 which he was using were all point estimates, sort of  
18 averages here and averages there based upon some work  
19 which had been done in the United States.

20           Again, I have difficulties applying an  
21 American average or even an American regional average  
22 to Ontario. I even have more difficulty applying that  
23 average to the various localities in Ontario.

24           Somehow we have to ensure -- and this is  
25 the purpose behind the development of values functions.

1 We have to ensure that the value estimates are  
2 sensitive to the geographic particularities of the area  
3 that we are trying to address. So that's actually the  
4 largest area of difference with what Dr. Victor had to  
5 say.

6 Thirdly or finally I would sort of lump  
7 his item No. 3 and 6 together, the development of  
8 technical manuals for estimation and use of  
9 non-timber values by staff of the Ministry. I think  
10 that is simply premature at this point.

11 Hopefully we will be able to develop a  
12 manual or computer programs or whatever which will  
13 enable non-economic staff at the district level to  
14 incorporate some economic analysis into their planning,  
15 but it is out of sequence there.

16 It is the final output. It is not  
17 something in between unless of course you are going to  
18 rely upon it generic outputs from elsewhere.

19 Then finally his point No. 6, the  
20 development of criteria for identifying situations  
21 where generic samples are inapplicable and site  
22 specific requirements should be made.

23 In my terminology nowhere are the values  
24 function which we have come up an example and case  
25 studies have to be made that would be part of the



1 manual. It is sort of the use and abuse of the method  
2 will be part of whatever manual or however this program  
3 is transferred down to the district level.

4 I will now turn it over to Mr. Kenny.

5 Q. Just one last question, Mr.  
6 Grvelines. The work that you described that you are  
7 doing in relation to these subject matters is work that  
8 you are doing as part of the forest values program; is  
9 that correct?

10 A. Yes.

11 Q. And the forest values program I  
12 think, as you indicated, is a program which is wider  
13 than timber management?

14 A. Yes. It is also addressing the  
15 issues of non-timber values.

16 MR. KENNEDY: A. Madam Chair, a number  
17 of concluding comments just to summarize some of the  
18 points that Mr. Grvelines has mentioned and also  
19 highlight our term and condition 88.

20 We can say that since the beginning of  
21 the hearing to where we are today that MNR has been  
22 making greater use of socio-economic expertise.

23 As Mr. Grvelines has indicated, we have  
24 been training staff in these matters. I believe the  
25 number of workshops that have been conducted through

1 the Banff Centre now totals three. I believe we have  
2 had attendance between 30 to 40 people per workshop, to  
3 my understanding -- sorry, two workshops have been  
4 held.

5 The greater awareness that we have of the  
6 socio-economic issues is contributing now to our policy  
7 development and also into our program implementation.

8 The kinds of projects that Mr. Grvelines  
9 has expressed and will be placed with his team, we are  
10 investigating the use of these socio-economic tools.  
11 We are initially looking at the regional and provincial  
12 levels, this is true, and through that we hope that we  
13 will be able to gain the necessary information and  
14 experience that can guide us for use in work at the  
15 district and timber management -- sorry, forest  
16 management unit level.

17 We think it is important to put that  
18 provincial framework in first before we proceed  
19 directly to the management unit, but that work that is  
20 underway now, we plan to continue with that type of  
21 work at the management unit level and that is why we  
22 have put forward term and condition 88.

23 If I could just read that into the  
24 record, it is:

25 "Within two years of this approval MNR

1 shall investigate available analytical  
2 methods for assessing social and economic  
3 advantages and disadvantages and their  
4 applicability to Ontario's timber  
5 management operations and shall develop  
6 or adopt appropriate methodologies for  
7 use in timber management planning."

8 That's the end of the term and condition.

9 Madam Chair, it is our intention to learn  
10 from the experience of the projects that Mr. Grvelines  
11 has referred to and to look for ways of putting them  
12 into place at the district forest management unit  
13 level.

14 To that end we expect to hold a number of  
15 workshops where we will have a variety of forest users  
16 present along with socio-economic expertise and look at  
17 practical ways of putting in place some new tools,  
18 information gathering techniques to help in problem  
19 solving with specific situations that come up during  
20 timber management planning.

21 We do believe that a reasonably amount of  
22 time will be required to do that and we hope to get  
23 underway soon after the hearing concludes and have some  
24 of that collected within two years.

25 Madam Chair, I indicated earlier,



1 yesterday I believe it was, that I will be spending a  
2 few moments on a summary of the evidence that will come  
3 in on Panel 5 and how it relates to our undertaking.

4 I think that the individual witnesses  
5 have presented an adequate description of the summary  
6 of their papers as they have gone. I don't see any  
7 need to take any further time in summarizing that  
8 information.

9 I would just remind the Board that we  
10 brought forward what we thought were some of the more  
11 important information items that were necessary to  
12 responds to orally. I would say that the balance of  
13 the information in Panel 5 that we haven't addressed  
14 orally is still valid and I would ask you to refer to  
15 that in your deliberations.

16 MR. FREIDIN: That's the  
17 evidence-in-chief, Madam Chair.

18 MADAM CHAIR: Thank you, Mr. Freidin.

19 Mr. Cassidy, you wanted to begin your  
20 cross-examination?

21 MR. CASSIDY: And finish today.

22 CROSS-EXAMINATION BY MR. CASSIDY:

23 Q. Mr. Kenny, I read your witness  
24 statement for this panel and the references in it to  
25 some of terms and conditions of the latest incarnation

1 of the Ministry of Natural Resources in January of this  
2 year and I am interested in one relating to the  
3 provision for auditing of management units.

4 Without the necessity of digging out the  
5 term and condition, your term and condition 72 talks  
6 about providing for audits of FMA management units, of  
7 all FMA units every five years on a five-year cycle  
8 while discriminating between them and Crown management  
9 units where you propose to do only what's called random  
10 audits or on a random basis.

11 Your witness statement, and again I don't  
12 think it is necessary to go to the actual page but it  
13 is page 57, talks about that and basically suggests, as  
14 far as I can see, and I am asking you to confirm that  
15 the only reason reason for distinguishing between doing  
16 independent audits for FMA units and audits for Crown  
17 management unit, as you have distinguished, is on the  
18 basis of cost and that is the cost considerations to  
19 the Ministry given their other commitments; is that  
20 fair?

21 MR. KENNEDY: A. I want to make one  
22 correction, Mr. Cassidy.

23 The term and condition refers to  
24 conducting a sample of a random number of company and  
25 Crown units, but, yes, your assessment from there is

1 correct that the reason that we have said it in Reply  
2 Panel 5 for doing a random sample rather than doing the  
3 total sample is simply a reflection of costs. We felt  
4 it would an appropriate spot in which to save some  
5 money by doing a random sample.

6 Q. I guess that's a reflection of what  
7 we all know to be the case and that is MNR has limited  
8 and scarce resources and has to make those decisions  
9 somewhere in its management planning what it is going  
10 to spend money on; is that correct?

11 A. That's correct.

12 Q. Now, Mr. Bisschop, you talked about,  
13 in response to I think some of Madam Chair's questions  
14 and Mr. Martel's, about planning for alternatives and I  
15 think it was Mr. Freidin who in fact asked you why you  
16 would do planning for alternatives where there was no  
17 public concern or a concern of a Ministry expert over a  
18 particular area and I wrote down your answer, you said  
19 it is simply a matter of good planning.

20 Now, to my client that sounds like you  
21 are planning for planning sake and in light of what Mr.  
22 Kennedy just said about how they are discriminating  
23 between management units for auditing purposes I am  
24 wondering how you can justify doing planning for  
25 planning sake with such limited Ministry resources?



1 MR. BISSCHOP: A. When you refer to  
2 planning for planning sake, I am assuming you are  
3 speaking to what I would characterize as environmental  
4 planning where one has to consider alternatives,  
5 evaluate and compare them and make decisions with  
6 rationale.

7 I think in the explanation I gave  
8 yesterday I explained that my view of good  
9 environmental planning means that you ought to do that  
10 depending on the kind of undertaking you are dealing  
11 with, the kinds of other values you are dealing with,  
12 the risk of harm and I explained that our view on that,  
13 our approach on that is that we direct our efforts to  
14 where we believe the risk of doing harm is the  
15 greatest.

16 Therefore, we concentrate our efforts on  
17 what we think are activities of concern, roads being a  
18 principal one, and operations in areas where there are  
19 other values.

20 So in that sense we are saying that good  
21 planning, not just for planning sake, but good planning  
22 is required where we have those kinds of values where  
23 the risk of harm is greatest and in that sense good  
24 planning translates into basically rationalizing the  
25 decisions that you are going to make.

1 Q. Professor Armson, absent cost  
2 considerations, is it appropriate in your view to  
3 discriminate between doing audits on all FMA units and  
4 only doing them on a random basis in Crown management  
5 units or company management units?

6 MR. ARMSON: A. I think, Mr. Cassidy, it  
7 has been well known for the past three years I have  
8 been a strong advocate of independent external audits  
9 on all management units. I think that is my answer.

10 Q. So you would agree with me that there  
11 is no silvicultural rationale to distinguish between  
12 Crown management units and FMAs for the purpose of  
13 auditing?

14 A. No.

15 MR. CASSIDY: Those are my questions.

16 MADAM CHAIR: Thank you very much, Mr.  
17 Cassidy, and good luck tomorrow.

18 Mr. Lindgren, how long will you be in the  
19 cross-examination of these witnesses?

20 MR. LINDGREN: At this point I would  
21 estimate two to two-and-a-half hours.

22 MADAM CHAIR: Ms. Gillespie?

23 MS. GILLESPIE: I would estimate one to  
24 one and a half hours.

25 MADAM CHAIR: All right. We will

1 certainly finish this panel tomorrow.

2 Thank you very much and we will see you  
3 here at 8:30 tomorrow morning.

4 MR. CASSIDY: Madam Chair, I wonder if I  
5 might just briefly revisit the issue since I intended  
6 to depart to audit a chocolate factory tomorrow, if I  
7 might just inquire as to the Board's latest thinking on  
8 the final argument, delivery of oral argument.

9 As I recall yesterday we were discussing  
10 the merits of asking MNR staff to sit through November  
11 11th and I got the general feeling from Mr. Freidin  
12 that that was not going to be a problem from MNR staff,  
13 but then I heard something about the problem with the  
14 hall might not be available on that day and I was just  
15 wondering about the status of that.

16 MR. MARTEL: I met with Mr. Keir over the  
17 lunch hour and hope to have an answer. It is my  
18 understanding that they would be prepared to open the  
19 premises for us on November the 11th.

20 I suggested that someone would be willing  
21 to pay the staff person who would come in that day  
22 because it is a statutory holiday for them.

23 MR. FREIDIN: Are you going to survey?

24 MR. MARTEL: I didn't say who was willing  
25 to pay, but rather than fly people back -- I put it to



1       them that way, rather than fly people back to Toronto  
2       or have people sitting around here for a day, they  
3       think it would be just fine and I expect a report back  
4       some time today or earlier tomorrow morning, but it is  
5       my intention to proceed now.

6                   MR. FREIDIN:  Mr. Martel, I think you can  
7       proceed on the basis that we will sit on the 11th and  
8       the matter of financing the accommodation will not  
9       become a problem, it hasn't in the past when certain  
10      things have arisen and it won't on the 11th.  So I  
11      think we can proceed on the assumption that payment  
12      will be made.

13                   MR. CASSIDY:  May Ms. Cronk and I then  
14      assume that we will commence on October 19th?

15                   MR. MARTEL:  Yes.

16      ---Whereupon the hearing was adjourned at 4:10 p.m.,  
17         to be reconvened on Thursday, August 6, 1992 at  
18         8:30 a.m.















